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ABSTRACT

This study provides a perspective of history for the future development of cooperative education and describes in detail the philosophical basis upon which cooperative education was established. Five defined periods of the growth of cooperative education are discussed: the early establishment of cooperative education in the seven colleges prior to the First World War the growth and diversification between World War I and the Depression; the difficult test of the Great Depression and World War II; the expansion after World War II and the organization of cooperative education; and the unprecedented growth in the last decade prior to 1972. Recommendations for the future are included with an examination of the statistics of their growth and their implications for further development. The appendices contain charts and maps which illustrate the development of cooperative education at some 300 colleges in the United States and the bibliography contains over 200 entries. (Author/MJM)

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COOPERATIVE EDUCATION
IN
AMERICA

Its Historical Development, 1906 - 1971

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COOPERATIVE EDUCATION IN AMERICA

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ABSTRACT

THE HISTORICAL DEVELOPMENT OF
COOPERATIVE EDUCATION IN
AMERICAN HIGHER EDUCATION

(Order No.)

Joseph Ernest Barbeau, Ed. D.

Boston University, 1972

Major Professor: Eugene E. DuBois, Associate Professor of Education

This study sought to provide the perspective of history for the future development of cooperative education and to describe in detail the philosophical basis upon which cooperative education was established. The central hypothesis was that cooperative education was based upon a sound educational philosophy, and that this philosophy has persisted since the beginning of the movement and was still valid in 1971.

The development of the cooperative plan was traced from its beginning at the University of Cincinnati in 1906 to its status in 1971 when these programs were in operation at some 220 colleges and in the planning stages at some seventy others.

Believing that the rationale for any innovation is most clearly presented at the time of the idea's inception, the investigator began this study with an examination of how the cooperative plan evolved in the mind of its originator, the late Herman Schneider of Cincinnati. The study showed rather emphatically that cooperative education was a uniquely American concept and that it filled a definite need for a more practical form of higher education.

To achieve some order in the presentation of this historical investigation, the author examined five rather clearly defined periods of

growth: (1) the early establishment of cooperative education in the seven colleges prior to the First World War, (2) the growth and diversification between World War I and the Depression, (3) the difficult test of the Great Depression and World War II, (4) the expansion after World War II and the organization of cooperative education, and (5) the unprecedented growth in the last decade prior to 1972.

Throughout this dissertation care was taken to relate the development of cooperative education to the demands of the times in which this development took place. The institutions and personalities involved were described in detail to add a sense of reality and timeliness to the study. Finally the philosophy of cooperative education, its advantages, and the essential ingredients of a successful cooperative program were presented so that future development could be guided by what others had done before.

Recommendations for the future were included with an examination of the statistics of this growth and their implications for further development. The appendices contain charts and maps which illustrate the development of cooperative education at some 300 colleges in the United States and the bibliography contains over 200 entries.

PREFACE

In this study the author presented the historical development of cooperative education in the colleges and universities in the United States, not as a dreary compilation of facts and figures, but as a story of the institutions, organizations and personalities involved. Because the history of cooperative education covers more than seventy years, most of the research concerned the writings of others. This information coupled with the research data available represents, as far as possible, an accurate interpretation of the development of cooperative education. In his biography of Herman Schneider, Clyde Park tells us that Schneider did not like "conspicuous annotation" and that in one instance, after reading an educational monograph that was replete with footnotes, Schneider remarked, "Half of this fellow's stuff is in footnotes and is neither in the book nor out of it. Why didn't he wait until he was ready to write?" The author hopes that the use of footnotes in this effort will not be construed as a similar lack of readiness.

Historical research and reporting cannot escape the predisposition of the investigator. The author of this study has worked in the administration of cooperative education for the past thirteen years and has a strong commitment to this form of higher education. If this enthusiasm for cooperative education is apparent, it is for this reason.

As the research progressed, it became more and more important to communicate with "cooperative educators" at other institutions to resolve conflicts and to fill in spaces left in the literature. Virtually all of

those contacted gave great encouragement for the continuation of this study. As one of the "old timers" in cooperative education said, "I'm glad someone is putting it all down on paper at last. Many of us early pioneers in co-op are gone, and every year that passes means more and more of the information is lost." This kind of comment sustained this endeavor when the task seemed overwhelming.

When one attempts to acknowledge those who have helped in an effort of this magnitude, there is always the risk that significant contributions will be overlooked. Fully concious of the danger involved, therefore, the author would like to acknowledge the following contributions: Northeastern University, specifically the Department of Cooperative Education and Deans Roy L. Wooldridge and Paul M. Pratt for granting the leave necessary for the completion of this program; Dean Frank E. Marsh, Jr., also of Northeastern University, for his support and his willingness to serve as reader of this document; Dr. Eugene E. DuBois of Boston University, who was more than an adviser, for his corrections and comments; Dr. Malcolm Knowles, Dr. Gene Phillips and Dr. Richard Olmsted, the other members of my committee; Carol L. Cook of the Massachusetts Bay Community College, who typed and corrected the entire manuscript; and the many deans and directors of cooperative education at dozens of schools who responded to my queries with such willingness and speed. Without the help of these colleagues, and particularly Mrs. Barbara J. Barbeau, who took time out of her busy schedule to proof-read every draft and offer her helpful criticisms, this project could not have been completed.

CONTENTS

Abstract iii

Preface v

Table of Contents vii

List of Tables ix

I. PURPOSE OF THE STUDY 1

Related Research 7

Definitions 10

Design of the Study 12

II. THE NEED FOR NEW FORMS IN HIGHER EDUCATION 19

Work-Oriented Programs at the Turn of the Century 22

America at the Turn of the Century 24

American Higher Education at the Turn of the Century 31

III. DEAN SCHNEIDER'S IDEA 45

His Early Years 47

His Philosophy of Work 52

His Idea 58

IV. COOPERATIVE EDUCATION BECOMES A REALITY 63

The Cooperative Plan 63

The Idea Spreads 70

The Status of Cooperative Education by World War I 79

V. PATTERNS OF GROWTH 84

Effects of the World War 84

New Types of "Co-op" Programs Begin 88

The Status of Cooperative Education by 1930 97

VI. COOPERATIVE EDUCATION MEETS THE CHALLENGE 99

The Depression Years 99

World War II 110

The Status of Cooperative Education at the End of World War II 113

VII. THE ORGANIZATION OF COOPERATIVE EDUCATION 117

The Early Organizations 121

Growth of "Co-op" in the Fifties and Early Sixties 124

The Edison Study and the Founding of the National Commission for Cooperative Education 131

The Cooperative Education Association 136

VIII. DIVERSIFICATION AND UNPRECEDENTED GROWTH 138

"Co-op" and Minority Group Education 140

Growth of "Co-op" in the Senior Colleges 146

Growth of "Co-op" in the Junior Colleges 152

IX. SUMMARY OF THE STUDY 156

Purpose of the Study 156

Summary of Findings 158

"Co-op" and the Federal Government 165

Current Trends and Implications for the Future . . . 170

Appendices 178

Bibliography 203

Vita 220

LIST OF TABLES

Table 1. Comparison of 1961 vs. 1969 COOPERATIVE STUDENT Enrollments for Fourteen Selected Colleges 139

Table 2. Distribution of Federal Grants Under P.L. 151

Table 3. Governance of Cooperative Institutions 173

Table 4. Length of Alternating Periods in Cooperative Programs 173

Table 5. Type of Cooperative Programs 178

CHAPTER I

PURPOSE OF THE STUDY

After all is said to the discredit of "bread and butter" motives, it is no moral or philosophical objection to a discovery or a field of knowledge that it has useful applications.

--Charles W. Eliot

Cooperative education--that system of education in which students alternate periods of academic study with periods of related work experience--has become a significant movement in American higher education. In 1971 there were over two hundred and fifty institutions of higher learning using this plan and involving over 75,000 students.

Although cooperative education began in 1906 and has continued to show growth, particularly since 1963, a comprehensive history has never been written. At the present time, there are several reasons to justify such an historical effort. In the first place, there is much interest today in various kinds of programs that introduce work experience into the college course. Many of the suggestions made recently seem to promote the idea of cooperative education, and yet there is much misunderstanding as to what constitutes cooperative education.

In 1971, the Assembly on University Goals and Governance said in their First Report:

> Students ought to be permitted to intermingle study and work in ways that are now uncommon. This is not simply a plea for an extension of what now passes for cooperative work and

> study programs, where the student spends one or more terms away from a college campus. Rather, it is an assertion that significant employment opportunities for students may be provided in term-time if the university recognizes the value of such experience and is prepared to admit its educational importance. New counseling and instruction techniques will be needed for such educational combinations. Without close supervision, programs of this kind could easily become peripheral--a kind of extracurricular "make work." [1]

This kind of statement shows clearly that an understanding of the cooperative system is necessary, for in truth, what the Assembly advocates is a typical cooperative program.

In a similar fashion, the Carnegie Commission on Higher Education recommended that, "all colleges should encourage prospective and continuing students to obtain service and work experience."[2] However, in Appendix C of their report, they make a statement regarding "Cooperative Programs in the United States" which is not only inaccurate, but shows considerable ignorance.[3] One should not be too harsh on the Commission though, because a review of fifteen prominent histories of education reveals that cooperative education has never been included.[4] In fact, it has been ignored completely. The comments Charles R. Mann of the Carnegie Foundation made regarding the history of technical education would apply equally well to cooperative education:

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[1] The Assembly on University Goals and Governance, A First Report (Cambridge, Mass.: American Academy of Arts and Sciences, 1971), p. 14.

[2] The Carnegie Commission on Higher Education, Less Time, More Options (New York: McGraw-Hill, 1971), p. 13.

[3] Ibid., p. 40.

[4] The fifteen histories reviewed were: Brubacher and Rudy, Higher Education in Transition; Cubberly, The History of Education and

> The magnificent service which the schools have rendered in conserving ideals in America is fully described in the standard histories of education. But the industries and mechanics arts, which have rendered a no less magnificent service in expressing American spirit, have received but scant recognition.[1]

This study was an attempt to correct this situation, at least as it concerns cooperative education.

Secondly, the growth of cooperative education, for the most part, has been haphazard, without a set of guiding principles--at least until 1963 when the National Commission for Cooperative Education was formed to try to build order from confusion. The progress in cooperative education developed largely in response to institutional and individual needs and goals, and partly because outside pressures demanded it.

Thirdly, there is a need to articulate a rationale for cooperative education that is acceptable to the academic community-at-large. Roy L. Wooldridge of Northeastern University has spent much of his time since 1963 consulting in cooperative education with other institutions of higher learning. He reports that a chief stumbling block to acceptance of the cooperative idea is faculty resistance.

A Brief History of Education; Curti, Social Ideas of American Educators; DeVane, Higher Education in Twentieth Century America; Eby, The Development of Modern Education; Good, Sociology and Education; Hofstadter and Smith, American Higher Education: A Documentary History; Knight, Education in the United States; Rippa, Education in a Free Society; Thwing, A History of Higher Education in America; Veysey, The Emergence of the American University; Woody, Liberal Education for Free Men; Brameld, Workers' Education in the U. S.; and Sanford, The American College. The complete reference can be found in the accompanying bibliography.

[1]Charles R. Mann, "Report of Progress in the Study of Engineering Education," Proceedings of the Society for the Promotion of Engineering Education, XXIV (June, 1916), 49.

As new institutions seek an operational philosophy, and as older institutions consider new and different approaches to higher education, it is evident that the philosophy of cooperative education is not understood by most educators. The fact that there is a resistance to the cooperative plan by faculty members is not new, nor should it be surprising. Muller tells us that, "All creative achievements are disruptive, and create new problems."[1] But to legitimize cooperative education for the academic community, it is necessary to describe what is cooperative education, what is its philosophical base, what are the significant events in its history, and how it has satisfied, and continues to satisfy some of the educational needs of our society. To do this, cooperative educators themselves need to know their own profession. As Muller says, "And so we had better strive to become clearly and fully conscious, of who we are, where we are, and how we got this way."[2]

Even in many institutions of higher education that profess to be cooperative in nature, there is a lack of knowledge about the educational aims and inherent philosophical considerations imposed on the faculty by this unique system of education. The students constantly complain that the classroom instructor makes no attempt to integrate the students' related work experience with theoretical or methodological discussions.

Another reason for completing this study is the fact that the federal government, in Public Law 91-204, appropriated $1,340,000 in grant

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[1] H. J. Muller, Uses of the Past (New York: Oxford University Press, 1952), p. 24.

[2] Ibid., p. 27.

money in 1970-71 to institutions of higher learning wishing to start or improve programs in cooperative education.[1] Cooperative education, therefore, is at a point in time when, to paraphrase Knowles, "An understanding of the present state of the field of Cooperative Education is sought through understanding its origins and patterns of growth."[2]

Throughout this study, an effort was made to examine all issues and events as they arose, and to evaluate them in terms of society's need for higher education at that time. The central hypothesis was: that cooperative education was based upon a sound educational philosophy, and that this philosophy haspersisted, perhaps with modification, since the beginning of the movement, and that it was still the educational philosophy of cooperative education in 1971. It was the intent of this study to examine the history of the cooperative education movement and from this investigation to gain an understanding of how cooperative education developed during this century and to make this knowledge available as a guide for further development of cooperative education in the United States and elsewhere.

In order to undertake this project, certain assumptions had to be made. They were as follows:

1. There is sufficient interest in the field of cooperative education, by virtue of the number of institutions utilizing this system, to make this study worthwhile.[3]

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[1]Public Law 91-204, United States Congress, Ninety-first Session, (Washington, D. C.: Government Printing Office, 1970).

[2]Malcolm Knowles, The Adult Education Movement in the United States (New York: Holt, Rinehart, and Winston, 1963), p. viii.

[3]As of June, 1971 two-hundred and fifty institutions of higher learning had adopted some form of cooperative program. These data were reported by the National Commission for Cooperative Education.

2. The development of successful programs is enhanced by some knowledge of what occurred before.[1]

3. There is a need on the part of outside agencies for historical information in evaluating new programs.

4. A sound philosophical basis for these programs exists and can be discovered through historical research.

As mentioned earlier, there was considerable expansion in the field of cooperative education after 1963. This expansion created a need on the part of the federal government for information describing the cooperative education movement and the way these programs differ from other work-oriented ones. For while 1.3 million dollars were awarded in planning grants to 74 institutions of higher learning in the 1970-71 fiscal year, this represented only a small percentage of the 206 schools that requested some 8.5 million dollars.[2] In instances such as the above, it should be obvious that a knowledge of the philosophy of cooperative education is important in order to make decisions on the awards.

Developing institutions interested in adopting the cooperative plan have had difficulty in obtaining information about the history of this movement and its operational philosophy. Between 1960 and 1972, nearly two-hundred colleges adopted some form of cooperative education. (See Appendix I). Most of the information regarding this educational

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[1]"History provides perspective." See Henry Steele Commager, The Nature and Study of History (Columbus, O.: C. E. Merrill Books, 1965), p. 92.

[2]"Notification to Members of Congress," Department of Health, Education and Welfare, Bureau of Higher Education, dated July 8, 1970. (Mimeographed).

plan is available to these institutions in the form of consulting service from about a half-dozen of the successful cooperative colleges. Having done some of this consulting work for over five years, this author can state that the historical information has been scant and haphazard. Yet, a readily available reference on the historical background would have answered many of the questions these institutions had.

The directors of some philanthropic foundations apparently feel that there is merit in supporting cooperative education. The Edison Foundation, after supporting conferences to examine cooperative education, donated funds to establish the National Commission for Cooperative Education in 1963 to promote this plan of education in other colleges.

In 1968, the Ford Foundation provided funds to establish an endowed chair at Northeastern University for research in the field of cooperative education. It was the feeling of those concerned that not enough was known about what has been happening in the field and how we got where we are.

In addition to the above, there has been interest shown in the early seventies by other institutional research agencies, such as the Stanford Research Institute, in examining the merits of various kinds of "interlude" work experiences for college students in general.[1]

Related Research

A number of studies have been made in the field of cooperative education, but most of them have been descriptive, dealing with the development and operation of a specific program at a given institution.

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[1]Terrance Cullinan, "Effects of Non-academic Interlude Periods on U. S. Undergraduate Students" (unpublished research proposal, Stanford Research Institute, 1969).

Clyde Park authored the first study in 1916, and it was published by the United States Bureau of Education.[1] This was a study of the first ten years of the cooperative plan at the University of Cincinnati. Before that, there were descriptions of the program by Dean Schneider, the originator of this movement in America,[2] and some descriptions of cooperative programs being operated in high schools.[3]

In 1922, a study of cooperative education in the engineering field was published,[4] and in 1927, the most comprehensive study to that time was conducted by the Society for the Promotion of Engineering Education with a grant from the Carnegie Corporation of New York.[5] In 1937, Dean Gowdy of Cincinnati published, "Trends in Cooperative Education" in School and Society,[6] and this was followed in 1943 by a doctoral dissertation by Leo F. Smith entitled "Cooperative Work Programs in

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[1]Clyde Park, "The Co-operative System of Education," U. S. Bureau of Education Bulletin, 1916, No. 37 (Washington, D. C.: Government Printing Office, 1916), pp. 48.

[2]Herman Schneider, "Cooperative Course at Cincinnati: Results and Lessons," Engineering Magazine, XXXV (September, 1908), 929-31.

[3]Mathew McCann, "The Fitchburg Plan of Cooperative Industrial Education," U. S. Bureau of Education Bulletin, 1913, No. 50 (Washington, D. C.: Government Printing Office, 1913), pp. 28.

[4]J. W. Roe, "Cooperative Plan of Engineering Education," Management Engineering, II (May, 1922), 269-74.

[5]Society for the Promotion of Engineering Education, "A Study of the Cooperative Method of Engineering Education," Bulletin No. 12 (Lancaster, Pa.: The Society, 1927), pp. 67.

[6]R. C. Gowdy, "Trends in Cooperative Education," School and Society, XLVI (July, 1937), 26-30.

Higher Educational Institutions in the United States: Present Status, Trends, and Implications."[1] In this study, Smith devotes most of his time discussing the extent of programs then in existence, the techniques which institutions used in organizing and administering their programs, and the cooperative programs at the Rochester Athenaeum and Mechanics Institute specifically. He gives us this information, however, regarding research done to that time:

> During the thirty-six years since the inception of the first co-operative work program at the University of Cincinnati in 1906, there have been several studies of this type of education. The majority of these, however, have been descriptive accounts of a specific program or status studies indicating the number of institutions carrying on this type of program, the location of the schools, the course offered, the number of students enrolled, the period of alternation, the length of the courses, and the degrees granted.[2]

Since World War II, a great deal has been written in the journals about cooperative education, but again, it is largely descriptive--virtually none was based upon study, nor was it concerned with historical development.[3]

There have also been a large number of Master's theses written about various aspects of cooperative education, but they described current development in the field as a rule. As Smith said some years ago, "It might appear from the number of Master's theses which have been written that the field of cooperative work programs has been

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[1] Leo F. Smith, "Cooperative Work Programs in Higher Educational Institutions in the United States: Present Status, Trends, and Implications," (unpublished Ph. D. Dissertation, University of Chicago, 1944), pp. 209.

[2] Ibid., p. 10.

[3] The exception is: J. W. Wilson and E. H. Lyons, Work-Study Programs in the United States (New York: Harper Brothers, 1961).

rather thoroughly explored. This, however, is far from the case."[1] There have been a handful of other dissertations written in the past thirty years that concerned themselves with cooperative education, but these have not shed additional light on the historical questions.

Definitions

Before one can discuss the cooperative education movement, one must first have a clear understanding of what is meant by cooperative education. Armsby defined it in 1954 as "an integration of classroom work and practical industrial experience in an organized program under which students alternate periods of attendance at college with periods of employment in industry, business or government."[2] More recently Wooldridge has expanded and up-dated the definition as follows:

> Cooperative education is defined as a unique plan of educational enrichment designed to enhance self-realization and direction by integrating classroom study with planned and supervised experience in educational, vocational, or cultural learning situations outside of the formal classroom environment.[3]

In addition, the attitude of the institution is an essential ingredient. The Committee on Aims and Ideals of Cooperative Engineering Education emphasized that, "only those institutions are cooperative in which the cooperative method is sharply emphasized both in policy and in publicity."[4]

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[1]Smith, "Cooperative Work Programs," p. 14.

[2]Henry Armsby, "Cooperative Education in the United States," U. S. Office of Education Bulletin, 1954, No. 11 (Washington, D. C.: Government Printing Office, 1957), p. 1.

[3]Roy L Wooldridge, "Cooperative Education," National Commission for Cooperative Education, New York, 1969. (Mimeographed).

[4]C. J. Freund, et. al., "The Cooperative System--A Manifesto," Journal of Engineering Education, XXXVII (October, 1946), 118.

In the past, cooperative programs have often been referred to as "work-study" programs.[1] Today, thanks to the Higher Education Act of 1965, "work-study" has an entirely different meaning. In this act, the federal government used the term "work-study" to denote a program of part-time student employment in non-profit agencies that was paid for, in part, by federal funds. These kinds of programs are not considered cooperative education, nor was it the intent of the federal government to make this implication. But, on every college campus today, "work-study" carries the connotation of this part-time work program. It was an unfortunate choice of phrase, because it has created much confusion in the literature since that time. The use of the term "work-study" as synonym for cooperative education has been discontinued but the confusion persists. As recently as 1970, the U. S. Office of Education in reporting on the grants awarded for cooperative education under Public Law 91-204 saw fit to explain that, "the programs supported are not work-study programs."[2] This distinction must be made clear before we proceed further.

Over the years several other terms have been used to describe cooperative education programs. The terms "cooperative work," "co-operative plan" and "co-op" are the most frequently used, and will be used interchangeably in this study.

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[1]James W. Wilson and Edward H. Lyons, Work-Study Programs in the United States (New York: Harper Brothers, 1961).

[2]"Notification to Members of Congress," Department of Health, Education and Welfare, Bureau of Higher Education, dated July 8, 1970. (Mimeographed).

Throughout this study we will refer to "work" and "related work experience." Work is defined simply as "effort put forth to satisfy needs."[1] By related work, we mean that kind of experience which enhances the career development of the students performing the work. Obviously, not all work experience, even if related, isconsidered as cooperative education. Such things as related part-time employment, internships, student teaching and some types of "interlude" programs are examples of those kinds of programs not included under cooperative education. As this study will show, there are many types of cooperative programs and many ways of using cooperative education, but these are discussed in later chapters.

Design of the Study

To complete this investigation, the author divided his literature search according to the headings contained in chapters II through IX. For the earlier chapters, the writings of Dean Schneider and his contemporaries were studied and interpreted. As cooperative education spread to other institutions, the descriptions and comments of those involved were examined and, when appropriate, the minutes of meetings, as well as the subsequent discussions, of the organizations which supported cooperative education were researched. Over 1100 books, journal and magazine articles, and reports of meetings relating to cooperative programs in some 270 colleges, universities, and junior colleges were examined covering a period of some seventy years.

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[1]Herman Schneider, "The Natural Law of Work," American Machinist, XXXIV (December, 1911), 1081.

In attempting historical research of any kind, the most difficult tasks are to learn how to collect the data, what data should be collected, and once collected, what to do with them.

For guidance in this aspect of the study, several books on historical research and the writing of history proved to be quite helpful. The most notable of these were: The Critical Method in Historical Research and Writing by Homer Hockett; The Modern Researcher by Barzun and Graff; History as Future by Heilbroner and The Nature and Study of History by Commager. The question of what is important to this historical study, however, was left to the experience of the investigator and his thirteen years in this field. As Henry Steele Commager said, "So, too, in history, the intelligence of the historian is directed to bringing order out of the chaos of the past."[1]

Since the development of the cooperative education movement is meaningless unless placed in its proper historical perspective, many histories of education were reviewed. A list of the more helpful references can be found in the bibliography or in the footnote on page two and three. The only ones worth mentioning here are: Higher Education in Transition by Brubacher and Rudy; The Emergence of the American University by Veysey; Education in a Free Society by Rippa and American Higher Education: A Documentary History by Hofstadter and Smith.

The history of cooperative education, to a large degree, is the history of the institutions in which it flourished. Therefore, many institutional records and histories were studied--at least where such

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[1]Henry Steele Commager, The Nature and Study of History (Columbus, Ohio: Merrill Books, 1965), p. 87.

existed--to gain a perspective from which to understand the philosophies of the individuals and institutions involved. Chief among these were: The University of Cincinnati: A Success Story in Urban Higher Education by McGrane; Antioch College: Its Design for Liberal Education by Henderson and Hall; and the Origin and Development of Northeastern University by Marston. Many of the historical events of the institutions concerned were published in various journals and popular magazines and had to be uncovered by reviewing listings in the Reader's Guide.

As Veysey declared, "Among published sources, books and magazine articles written by academic men on educational topics, together with their addresses which appear in the proceedings of educational conventions, are doubtless of widest value."[1] So too, this investigator found the following to be of greatest value: The Journal of Addresses and Proceedings of the National Education Association, between 1887 and 1920; the Journal of the Proceedings and Addresses of the Association of American Universities, after 1901; and particularly, the Addresses and Proceedings of the Society for the Promotion of Engineering Education called Engineering Education, from its beginning in 1893. The articles were no more important than the discussions which accompanied them.

For some unknown reason, the Bulletin of the U. S. Bureau of Education, when it was part of the Department of the Interior, seemed to contain more information than after it became the U. S. Office of Education. The bulletins of the Division of Vocational Education and the Reports of the Commissioner of Education were used most frequently.

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[1]Laurence Veysey, The Emergence of the American University (Chicago: University of Chicago Press, 1965), p. 448.

Three bulletins in particular were indispensible: The Cooperative System of Education, 1916, No. 37 by Park; The Fitchburg Plan of Cooperative Industrial Education, 1913, No.30 by McCann; and Vocational Education, 1919, No. 25 by Bawden.

Of the many journals in which accurate, informative, historical material can be found, those that provided the best data for this study were the Educational Review; School and Society; the Journal of Engineering Education; the Engineering News-Record; and The Annals of the American Academy of Political and Social Science. Similarly, there were many popular magazines in which items of historical significance to cooperative education were presented, particularly since the concept was of much general interest in the beginning. The two leading popular magazines in this regard were the American Magazine and The Outlook, both now discontinued.

In order to understand how the idea of cooperative education came to be, the writings of the "prime mover," Herman Schneider of the University of Cincinnati and his biographer, Clyde Park were studied in great detail. Schneider's writings, alone, numbered over sixty articles and books in forty years. His writings spanned the range from technical articles in the field of engineering through those about his cooperative program to some poetry and fiction.[1] In addition, he was in demand as a speaker for conventions, conferences and ceremonies.

A study of this nature would not be complete unless it included the publications of many of the schools involved. In this connection, catalogs, annual reports, circulars, anniversary publications and the

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[1]A relatively complete list of the writings of Schneider can be found in Clyde Park, Ambassador to Industry: The Idea and Life of Herman Schneider (New York: Bobbs-Merrill, 1943), p. 315.

like were studied for facts about specific programs.

The reports of conferences and conventions of the organizations interested in cooperative education were also reviewed. The conferences of the Cooperative Education Association, held jointly with the Cooperative Engineering Education Division of the American Society for Engineering Education, have been very worthwhile. Also, a report entitled Cooperative Education and the Impending Educational Crisis published in 1957 by the Edison Foundation was of help in this investigation. The most complete study of cooperative education to that time was undertaken as a result of this conference and was published in 1961.[1]

More recently, publications and materials from the National Commission for Cooperative Education and the Cooperative Education Association--including some papers that were written and never published--proved extremely helpful, especially for information regarding cooperative education since World War II.

Last, but not least, is the information gathered by the investigator in his direct contact with individuals and institutions that have helped shape the history of cooperative education.

Limitations of the Study

Because of (1) the large number of colleges utilizing some form of cooperative education, (2) the geographic distribution of these schools, (3) the large amount of written information available and (4) the diversity of ways in which the cooperative program is used, certain limitations had to be imposed on this study. The investigator's judgement, again, had to be relied upon for the decisions as to what was significant

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[1]Wilson and Lyons, Work-Study Programs.

and what was not.

The amount of historical information regarding some of the programs was limited to old catalogs and unpublished materials no longer available. In these cases, accounts published in the literature often were in disagreemant with regard to particulars. Where disagreements could be resolved by referring to more reliable secondary sources, these were utilized with caution, knowing that the validity of the facts were suspect. Where disagreements could not be resolved, the facts were reported as found, with a footnote calling attention to the discrepancy.

Many of the people involved, in a significant way, in the development of cooperative education have died. But those remaining were contacted as time and resource allowed.

It should be recognized from the beginning that the personality and biases of the investagator were limiting factors. For, while the study was made as objectively as possible, the background of the investigator influenced the interpretation of the data. As Commager has said, "There is a bias in the choice of a subject, bias in the selection of material, bias in its organization and presentation, and, inevitably, bias in its interpretation."[1] This author is inclined to agree with Dean Ayer's comments made in 1927 when the Committee of Cooperative Education of the Society for the Promotion of Engineering Education made its report.[2] He was critical of the committee for not having on it "anyone who is operating a cooperative course" and said:

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[1]Commager, The Nature and Study of History, p. 53.

[2]F. E. Ayer, "Discussion of Timbie's 'Cooperative Course at M. I. T.,'" Journal of Engineering Education, XVII (December, 1927), 294.

> In the first place, the Board of Investigation decided that the investigation . . . should be an investigation from within. . . . Whether that method of investigation is the correct one or not, there may be a question. At any rate, it is not unique. It has been practiced in the United States Senate for years.[1]

It is the feeling of this investigator that the matter of cooperative education can best be studied by someone "who is operating a cooperative course" rather than by a disinterested outsider.

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[1] Ibid.

CHAPTER II

THE NEED FOR NEW FORMS IN HIGHER EDUCATION

This has been a business civilization--not a military, ecclesiastical, or scholarly one.

--Clyde Kluckhohn

Generally authors in the field of technical education credit the London Technical Exhibition of 1851 with giving higher technical education the first real push toward excellence. Alderson said, "Here for the first time in history, an opportunity was given on a large scale to compare and contrast the industrial products of all nations."[1] The factory system was firmly established, even though a social conscience had not yet emerged. The Industrial Revolution in England was at its peak, and in the United States it was just beginning to surge forward.

Perhaps the two most significant events in the first decade after the London Exhibition were the founding of the Central Technical College in London and the opening of the Massachusetts Institute of Technology in America. In England, Prince Albert, seeing the sad state of his country's technical education at Mid-century, suggested that the profits of the exhibition, coupled with a grant from Parliament, be used to establish a school to train scientists and engineers. This led to the founding of the Department of Science and Art in Kensington, which became the home for the Central Technical College, the Royal College of

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[1]Victor C. Alderson, "The Progress and Influence of Technical Education," Proceedings of the Society for the Promotion of Engineering Education, XIII (1905), 128.

Science, and the University of London.

Until this time, in the United States only three technical colleges had begun, Rensselear (1824), the Lawrence Scientific School at Harvard, and the Sheffield Scientific School at Yale (both in 1847).[1] The Navy had matched Annapolis with the Army's West Point in 1845, and that was the extent of American engineering education until the Massachusetts Institute of Technology began in 1865.

On both sides of the Atlantic Ocean, great strides were made in all forms of technical education during the latter half of the nineteenth century. The close of the American Civil War and the end of the Franco-Prussian War in Europe came within a decade of each other, and each demonstrated quite clearly the necessity of industrial might to political power.

During the Civil War, President Lincoln had signed into law the Morrill Land Grant Act which gave the states the right to use income from federal land-grants to establish colleges devoted to agriculture and the mechanic arts.[2] Every state in the Union now benefits from this act, for it enabled each state to provide the kind of practical higher education that the middle-classes could utilize. It led to the establishment particularly in the Midwest, of some of the truly great state universities, which pioneered in curriculum reform. One of the first work-oriented programs in the United States was that begun in the Iowa State Agricultural College in 1884 with the establishment of the first agri-

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[1]Francis Rosecrance, The American College and Its Teachers (New York: MacMillan, 1962), p. 46.

[2]This led to the establishment of several technical schools in that decade, such as the School of Mines at Columbia (1864), the Thayer School at Dartmouth (1867), Cornell University (1867), and Worcester Polytechnic Institute (1868). For further information see Mann, "Study of Engineering Education," Carnegie Bulletin, No. 11 (1918), p. 16.

cultural experiment station to provide a realistic environment for its programs. Beardshear said:

> Experience is showing that the matter of utility in the education of the land-grant college is rapidly drifting to its legitimate sphere of the experiment station, and utility as a chief end in technological education is following into the same concept with the theories of manual-training departments of colleges and industrial institutions.[1]

Higher education in America was taking on a vocational air, despite the attempts by some to hold onto the more traditional forms. Good commented, "In the university proper, the work is chiefly vocational, though a part of the work may be to develop other social relations, usually, however, from the point of view of the vocation."[2] The die was not cast and the decision was not irrevocable. There were many educators, like Simon Patten of the University of Pennsylvania who argued that, "of this new industrialism we may well be proud. It extends civilization, diffuses culture, and arouses new enthusiasm in the teacher. . . . To educators, it seems less worthy to stop waste, to increase economy and to improve mental and physical adjustments than to investigate, to discover, and to cultivate." But the tide was turning in favor of education for a vocation. Andrew S. Draper, when he was president of the University of Illinois, summed up American higher education in the latter half of the century in this way:

It took the cultivating work of the English scheme and discarded

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[1]William H. Beardshear, "The Function of the Land-Grant College in American Education," p. 475.

[2]Alvin Good, Sociology and Education (New York: Harper Brothers, 1926), p. 324.

[3]Simon Patten, "University Training for Business Men," Educational Review, XXIX (March, 1905), 32.

> its illiberality. It seized the spirit of scientific research, the methods of instruction through doing, and the love of universal learning so characteristic of the Germans; but refused their adminsitrative and official indifference to the habits of life and the ethical worth of their students . . . It took as the cornerstone of its foundations the sound pedagogic principle that intellectual virility, moral heroism, and industrial skill combine in the evolution of the deepest student and the strongest man, and are natural yoke-fellows in a democratic state.[1]

In most of the Western world, work of various types was creeping into the schools and their programs, so that by the time the twentieth century dawned, work programs in education and workers' education were much discussed and studied.

Work-oriented Programs at the Turn of the Century

Just as the London Exhibition of 1851 was considered a turning point in industrial education in Europe, so too the World's Columbian Exposition in Chicago in 1873 can be considered a turning point in technical education in the United States. Because of the interest this "fair" had created all over the world, and because of the large numbers of American and foreigners that would be visiting Chicago during this period, it was decided to hold an International Congress on Engineering Education there. As a result of this meeting, the Society for the Promotion of Engineering Education was born, and became the most influential voice engineering education has had.[2] Its founding is described for us below:

Mr. C. Frank Allen, secretary of Division E, Engineering Edu-

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[1]Andrew S. Draper, "American Universities and the National Life," Journal of Addresses and Proceedings of the National Education Association (1898), 216.

[2]The Society for the Promotion of Engineering Education was renamed the American Society for Engineering Education (ASEE) in 1946.

> cation, then made a report for that division, giving a brief summary of the several papers, stating that a great deal of useful work had been accomplished by this division, and that a permanent society had been organized by the members of that division for the promotion of Engineering Education.[1]

The significance of the foundation of this society to our study of cooperative education is enormous. As we shall see in subsequent chapters, the Society for the Promotion of Engineering Education and particularly its Cooperative Engineering Division (formed later) was not only helpful to the establishment of cooperative education, but has provided constant support and encouragement to this form of engineering education. The effect of this support over a period of seventy years cannot be estimated, nor fully appreciated. Most of the self-studies of engineering education, and of cooperative education, before 1940 were made under its auspices.

In the United States, electrical inventions of the late nineteenth century like the telephone, electric motor, and the street railway, were imposing even greater demands on the schools for trained engineers and technicians. M. P. Huggins of Worcester Polytechnic Institute, in 1900, advocated a "half-time, self-supporting, trade-school program," that would have students alternate between the classroom and the school's own shop. For their efforts, the students would not be paid, but neither would they pay tuition. Instead the school would be supported by the profits from the shop.[2] His program was not put into operation until some years later, and with considerable modification.

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[1] Proceedings of the International Congress on Engineering Education, I (1893), 334.

[2] Ira Baker, "Engineering Education in the U. S. at the Turn of the Century," Proceedings of the Society for the Promotion of Engineering Education, VIII (1900), 53.

Some colleges were experimenting with the use of summer vacations in order to give their engineering students some practical experience. At the International Congress, Burton described the need for vacation employment, supervised by instructors, at the Massachusetts Institute of Technology.[1] The purpose of the program was to give civil engineering students an opportunity to apply civil engineering principles on a full-time job. Other colleges were advocating the "factory visitation" system of the Germans to give their engineers the practical training they desperately needed. However, in the majority of cases the student was left on his own to find the kind of experiences that he felt he needed.

This need for practical experience was not limited to students alone. The editor of The Engineering Magazine suggested that faculty members acquire a similar "parallel with life" by using sabbatical periods, "not in sojourning at other universities, working in other laboratories, hearing other lectures, and seeing how this subject is taught--but in active work as an official or attache in a railway organization, a bridge or construction company, or a manufacturing plant, seeing how the things he teaches are actually practiced."[2]

America at the Turn of the Century

In order to view the beginning of cooperative education in its proper historical perspective, we must take time here to examine the United States as it approached 1900. The Civil War was now a generation old, and the after-effects of this great struggle were just becoming institutionalized.

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[1] Alfred Burton, "Vacation Work," Proceedings of the International Congress on Engineering Education, I (1893), 287.

[2] Charles B. Going, "The Relation of Engineering Education to Industries," Proceedings of the Society for the Promotion of Engineering Education, XVII (June, 1909), 73.

As is usually the case in times of great industrial prosperity, the extremes in society were becoming more pronounced. There were, on the one hand, the very wealthy industrialists epitomized by people like Vanderbilt, Rockefeller, Carnegie and Stanford, and on the other , the very poor characterized by the immigrants crowded into city tenements or the children herded into large, poorly ventilated factories. The extremes were generally at odds with each other, but the balance of justice tipped very definitely in favor of the wealthy.

The United States was in the middle of the greatest business "boom" that any nation had ever known. The Civil War had left the industrial North stronger and more prosperous than anyone had dreamed possible. America had emerged from being an agrarian society and had become one in which business and technology were paramount. The secret was in mass producing consumer goods and making them available to the general public. To do this, factories were needed, with mechanical devices that could accelerate production and increase efficiency. At the same time, a transportation network was needed that could deliver these goods to virtually every household in the nation. We developed both during this ante-bellum period--automated machinery for the factories and a coast-to-coast railroad network, with "whistle stops" in every town along the way. Alfred North Whitehead recognized this situation and commented:

> American inventiveness is not as primarily originative as it often gets credit of being, but is frequently in the secondary inventions that diffuse the article into general use. You didn't really lead off with the automobile . . . The French did that. What you did was adapt it to the multitude.[1]

However, it was the multitude that was forgotten in the production

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[1]Lucien Price, Dialogues of Alfred North Whitehead (Boston: Little, Brown, and Co., 1954), p. 49.

process itself. Working conditions were poor, if not disgraceful in many cases. The cult of efficiency reduced the tasks of the factory worker to those almost as mechanical as the ones performed by the machines. Labor became a commodity like all other resources and was viewed with a similar lack of humanity. Education for these workers was deemed important, only to the extent that it aided the efficiency of the production process.

If it was the scientific revolution that gave industry the necessary tools for this expansion in the latter half of the nineteenth century, ironically enough it was this same scientific revolution that gave industry its philosophy for justifying its social actions during this same period. In 1859 Charles Darwin published his famous "Origin of the Species" in which he elaborated a doctrine of "survival of the fittest" and "natural selection" in the biological world. By the turn of the century, this theory was being used to explain the actions of society as well. "One could explain this interpretation as a transfer of the ideas of biological evolution, selection, and struggle for survival into the total life of man."[1] Herbert Spencer, the English philosopher who did more than anyone else to promote Darwinism, viewed all of life in terms of this theory. Society is an organism similar to a biological organism, and the principles that are relevant to the latter are also relevant to the former. In the words of Durant:

> A social organism is like an individual organism in these essential traits: that it grows; that while growing it becomes more complex; that while becoming more complex, its parts acquire increasing mutual dependence; that its life is immense in length compared with

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[1] Robert Ulich, History of Educational Thought (New York: American Book Co., 1945), p. 322.

> the lives of its component units . . . Thus, the development of society liberally carries out the formula of evolution.[1]

This concept of Social Darwinism was "made to order" for the American businessman. His actions could now be justified in terms of "natural selection." Why one doctrine could exert such an influence is best summarized by Hofstadter:

> The answer is that American society saw its own image in the tooth-and-claw version of natural selection, and that its dominant groups were therefore able to dramatize this vision of competition as a thing good in itself. Ruthless business rivalry and unprincipled politics seemed to be justified by the survival philosophy. As long as the dreams of personal conquest and individual assertion motivated the middle class, this philosophy seemed tenable, and its critics remained a minority.[2]

So "big business" continued to amass the fortunes which made its leaders famous. But they were reaching a point of diminishing returns. By 1900 it had become apparent to the leadership of industry that what was needed was not just a pair of hands, but skilled and educated workers. An educated work force which had been forced upon them by laws and labor unions was now a commodity they needed.

Factory workers needed the basic skills obtained in elementary and trade schools; technicians needed the necessary technical skills for the industrial age; scientists and engineers had to ovtain the fundamentals of the sciences at institutions of higher learning, as did the managers and executives to run their businesses. In short, "big business" found that it needed education--but not education of the kinds existing at that time. New forms had to be found.

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[1]Will Durant, The Story of Philosophy (New York: Washington Square Press, 1970), p. 378.

[2]Richard Hofstadter, Social Darwinism in American Thought (Boston: Beacon Press, 1955), p. 201.

There were other social forces at work during this period, but in one way or another, they were all related to the growth of our industrial society. Cities began to grow by leaps and bounds as the farm-boys and foreign immigrants left their traditional homes and sought their fortunes in America's factories. For the most part, these people were poorly skilled and poorly educated, and the only jobs available to them were those that demanded much, paid little, and required long hours. But even these conditions could be explained and defended by Social Darwinsim. "While the law may be sometimes hard for the individual, it is best for the race, because it insures the survival of the fittest in every department."[1] In this manner, Andrew Carnegie was able to dismiss the inequalities of American society as simply obeying the laws of nature.

This attitude led others, rather naturally, into the acceptance of the philosophy of pragmatism which began to find its way into the American scene around the turn of the century. It seems more than coincidental that John Dewey was born in the same year that Darwin published his "Origin of the Species." His whole life was influenced in so many ways by advocates of Darwinism. G. Stanley Hall, William James, George Herbert Mead, Auguste Comte, and Thorsten Veblen all had a profound effect on his thinking.[2] Ulich tells us that it is "probably Darwin who most of all thinkers influenced Dewey's interpretation of

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[1]Andrew Carnegie, "Wealth," North American Review, CLXVIII (June, 1889), in S. A. Rippa, Education in a Free Society: An American History (New York: McKay Co., 1967), p. 149.

[2]Rippa, Education in a Free Society, p. 195.

Civilization."[1] It is no wonder then, that Darwinian tenets continuously reappear in his "new philosophy."

> Finally, the new logic introduces responsibility into the intellectual life. To idealize and rationalize the universe at large is after all a confession of inability to master the course of things that specifically concern us. As long as mankind suffered from this impotency, it naturally shifted a burden of responsibility that it could not carry to the more competent shoulders of the transcendent cause. But if insight into specific conditions of value and into specific consequences of ideas is possible, philosophy must in time become a method of locating and interpreting the more serious conflicts that occur in life, and method of projecting ways for dealing with them: a method of moral and political diagnosis and prognosis.[2]

Pragmatism became the flooding tide that swept all other ideas before it. The determination of Spencer's evolutionary thought was not sufficient to the purposes of a more practical outlook. Man could manipulate his environment to his own advantage. "Pragmatism was an application of evolutionary biology to human ideas, in the sense that it emphasized the study of ideas as instruments of the organism."[3] Pragmatism was also a philosophy that made sense to "big business." Since it stressed the application of ideas and the proof of their worth in the results they produced, this gave the large industrialists more fuel for their fire of justification of ruthless practices.

But not all industrialists or educators or philosophers were willing to accept Social Darwinism as the panacea. As Dabney points

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[1]Ulich, History of Educational Thought, p. 322.

[2]John Dewey, "A Short Catechism on Pragmatism," in The Influence of Darwin on Philosophy and Other Essays (Bloomington, Ind.: Indiana University Press, 1910), p. 164.

[3]Hofstadter, Social Darwinism, p. 124.

out:

> The historians of human thought will trace the great and all-pervading influence of the theory of Darwin on the whole realm of social, political, and religious thought and action. . . . evolution by influential increments, while perhaps true up to a certain point in nature, was not not a complete account of human life.[1]

During this same period, a great movement of cooperation between various elements of society came into being--whether out of a desire for economic self-preservation or for more philosophical motives, we can only speculate. The fact remains, however, that cooperation became the by-word. This was seen in the farmers' cooperatives, the dairy cooperatives, the cooperative store--all of which became part of the American scene. Even education, in some cases, became a cooperative venture. The founding of a number of municipal universities in the ante-bellum period is indicative of this trend. One of the presidents of a city university, Charles Dabney of the University of Cincinnati said, "Cooperation, the characteristic method of democracy, becomes, thus, the working plan of the city university."[2]

This spirit of cooperation was not only evident in the United States but in other countries as well, and the growth in population of American cities, coming as it did from the farms and from Europe, brought with it this idea that cooperation was a means to an end. In addition, the European immigrants readily recognized that education was also an important means of achieving the ending of the poverty in which

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[1]Charles W. Dabney, Fighting for a New World (New York: The Abingdon Press, 1919), p. 108.

[2]Charles W. Dabney, "The Municipal University and Its Work," Journal of Addresses and Proceedings of the National Education Association (1912), p. 775.

they found themselves. It is not surprising that this spirit of cooperation would be linked with it. "If I were to attempt to embody in a single word the secret of European educational progress during the past fifteen years, that one word would be cooperation. Let it sink deep into your consciousness, for I am confident that is the largest idea we can gain from European experience."[1] With this brief discussion of the social scene in America, we can now turn our attention to the ways in which education responded to the challenge before it.

American Higher Education At The Turn of the Century

American higher education before the Civil War was traditionally English for the most part. True, the University of Virginia stands out as an exception to the classical character of early American universities. However, this was due primarily to the influence of its founder, Thomas Jefferson, who persistently argued for an education that was useful as well as cultural. He was a firm believer in the necessity of an educated "elite" to a successful democratic republic. Jefferson not only saw the importance of intelligent governance and academic freedom to his university, but also recognized the importance of the newer sciences in the curriculum. According to Brubacher and Rudy, "The University of Virginia, he hoped, would become an institution 'in which all the branches of science useful to us and at this day should be taught in their highest degree.'"[2] His was not the first, nor the only voice for a utilitarian

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[1]Frederic E. Farrington, "Educational Progress of Continental Europe Since 1900," Journal of Addresses and Proceedings of the National Education Association (1915), 205.

[2]John S. Brubacher and Willis Rudy, Higher Education in Transition (New York: Harper and Row, 1968), p. 152.

education. Others, such as Benjamin Franklin, had long advocated this approach to higher learning in America. In spite of this, however, as the war between the states drew near, American colleges still remained predominantly patterned on the English model. But, wars do have their effect, and this one was no exception. Thwing said, "The war created the intellectual and ethical mood for planning and for doing great things. It was inevitable that such causes and results should eventually declare themselves in either the improvement or founding of institutions of highest learning."[1]

As important as the war was to the social history of this country, there were other factors, such as the growth of industry, that had a more pronounced effect. Before the Civil War, the growth in higher education was due mainly to the zeal of the religious missionaries. After the war, this zeal was replaced by new approaches to funding our colleges. Our nation was fast becoming the greatest industrial nation on earth, and the effects of "big business" on education were to be expected. Successful businessmen endowed many existing institutions with large sums of money, and others were instrumental in establishing new universities to accomplish needed reforms. Ezra Cornell, Johns Hopkins, Leland Stanford, Jr., and others are names synonymous with educational institutions known the world over. Sears said, " The idea of State support of higher education has been fully established; more than a dozen large private fortunes have given rise to as many institutions of higher learning; and some 8 or 10 (sic) large non-teaching foundations have been established."[2] According

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[1]Charles Thwing, A History of Higher Education in America (New York: Appleton, 1906), p. 432.

[2]Jesse B. Sears, "Philanthropy in the History of American Higher Education," U. S. Office of Education Bulletin, 1922, No. 26 (1922), p. 53,

to U. S. Office of Education statistics, only nine colleges for agriculture and the mechanics arts were established prior to the start of the Civil War. But, in the period 1862 to 1900, forty-one such schools were begun. In the ten years from 1898 to 1907, more money was given to education by philanthropists than had been given to education since the beginning of this nation. More than 480 million dollars was given and this represented over 60 percent of all money given for all charitable causes.[1] "We see the beginning of a new era in educational philanthropy--an era in which a great and independently endowed university could spring into existence almost at once from the gifts of a single benefactor."[2] This raised serious questions, of course, as to whether these institutions, so heavily indebted to their benefactor, could keep faith with America's concept of what education should be. And yet, in most cases, this fear was unfounded. If an examination is made of the charters of Johns Hopkins, Stanford University, or the University of Chicago,[3] as examples, one finds that the money was given with very little restriction. This gave the institutions involved a decided advantage over the existing ones. Sears tells us that:

> . . . these great fortunes were to build and endow a "college" or a "university," as the case may be, and no narrow limitations were placed upon the use of gifts . . . With such large initial funds available, it is obvious that these institutions are in a position to reject any subsequent gift that does not meet the essential purpose for which the schools were founded.[4]

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[1] Ibid., p. 58-60. [2] Ibid., p. 67.

[3] "Johns Hopkins University Charter, Extracts of Will, Officers, and By-Laws;" "The Founding Leland Stanford Junior University;" and "The Charter of the University of Chicago," in Sears, "Philanthropy in Higher Education," p. 68-70.

[4] Sears, Op. Cit., p. 70.

This period also saw the establishment of the great educational foundations to support many different institutions and causes in the field of higher education. A new business was born, the business of educational philanthropy. Most of these foundations were modeled after the first, the Peabody Fund, given by George Peabody in 1867. In the next forty years, such funds as the Slater Fund, the Carnegie Institution, Rockefeller's General Education Board, the Carnegie Foundation, the Russell Sage Foundation, the Phelps-Stokes Fund, and the Rockefeller Foundation were endowed. Even in 1972, these foundations were in the forefront of educational innovation.

But these industrial giants did more for higher education than merely establish new schools. To operate effectively, these companies needed trained managers--men who had specific professional training, in addition to the classical offerings existing at that time. Since most of these organizations relied upon a good base of scientific knowledge and research, trained scientists were in much demand. Business had no recourse but to turn to the universities which depended upon them for their support, with requests for assistance in providing the kind of college graduates they needed.

> In 1842, Wayland of Brown published Thoughts on the Present Collegiate System in the United States--a pamphlet which attacked present curriculum and suggested courses to be added that would be useful to merchants, manufacturers, and farmers as well as pre-professional students. He felt that businessmen would set up competing schools if the colleges did not.[1]

The effects of Darwinism were as complex as the effects of industrialization. Not only did it change the way biology and evolution were taught, but its most profound effects were in forcing science into

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[1]Richard Hofstadter and C. DeWitt Hardy, The Development and Scope of Higher Education in the United States (New York: Columbia University Press, 1952), p. 23.

the curriculum and in its influence on philosophy. Science was here to stay and the colleges could not ignore it. It was first introduced because academicians recognized that these were subjects "well suited to occupy and form the mind."[1] And secondly, the industry which was developing demanded people trained in the "scientific facts of life." According to Brown:

> When the universities gradually opened their doors to the teaching of natural science, they found among "the people" the accumulated scientific knowledge of the day.[2]

In some institutions, science was so emphasized that other studies seemed neglected. Financially, this may have been true in a great many universities. For the equipment with which to teach science was much more complex and expensive than that needed to teach the classics. William Rainey Harper, in his Decennial Report as president of the University of Chicago, describes this dilemma:

> It may be claimed that in the distribution between the Humanities and Science, the latter has been fairly delt with. When account is taken of the several laboratories erected, the considerable amount of equipment purchased, and the strong staff appointed in the various departments of Science, it will be recognized that a large share of the facilities of the University has been turned in this direction. Criticism has been made more than once to the effect that it would have been better to have inaugurated work in the Technological Departments from the beginning--in other words, that the practical side deserved a larger consideration than it received.[3]

However, it was in educational philosophy that Darwinism was most successful. In fact, the effects were still being felt a hundred years

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[1]Elmer E. Brown, "The University in Its Relation to the People," Journal of Addresses and Proceedings of the National Education Association (1892), 400.

[2]Ibid.

[3]William Rainey Harper in Richard Hofstadter and Willis Smith, American Higher Education: A Documentary History (Chicago: University of Chicago Press, 1961), p. 777.

later. In 1895, though, the effect was much more immediate. In Butler's view, " . . . all this has changed. Man has come to doubt not only his supremacy in the universe, but even his importance."[1] Out of this kind of thinking came the teachings of Dewey, Spencer, Hall, Sumner, and others who left education in general, and higher education in particular, considerably different than they had found it. The age-old controversy between those who advocated continuation of the classical tradition, on the one hand, and those who sought to liberalize higher education, on the other, was beginning to have an effect on the aims, the agencies, the methods, and the content of college education as the twentieth century began. Thwing said, "A new day was about to dawn in the academic world. Its significance was largely unknown to those who lived in its morning. But, seen from a distance of a generation, its coming was full of meaning."[2]

The aims of higher education, which until this time were to provide culture and knowledge in the classical vein, became more and more related to preserving the industrial prowess of our nation. After the Civil War, most of the changes in the character of higher education had to do with making education more useful. The classicists continued to lose ground to those who advocated a utilitarian education, and as Veysey said:

> Soon, faced with competition from other types of academic reformers, the advocates of utility gained two conspicuous havens within the university framework. First, they frequently became administrative leaders . . . Then, secondly, at the faculty level, a belief in the primary importance of utility characterized most of the professors in the new

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[1] Nicholas M. Butler, "What Knowledge Is Most Worth," Educational Review, X (1895), 105-106.

[2] Thwing, History of Higher Education, p. 431.

applied sciences and a majority of the social scientists.[1] This change in philosophy was not accomplished easily. Many eminent educators argued in opposition to this trend. The two chief criticisms of utilitarian education were: that "knowledge is accumulated without regard to its possible social utilization," and that a practical education turns out "men and women with highly trained powers, but often without the spirit to use these powers in conscious service to the race."[2] They felt that the aim of higher education should remain moral, and saw the acceptance of practical education as a threat to the religious nature of the institutions. However, the die was cast. Even prominent clergymen like Reverend Isaac Hopkins, the president of Emory College said, "The demand is for a system distinctly American, one in harmony with our tradition, our history, our democratic-republicanism, our growing power, our distinctive civilization."[3]

The philosophy of Positivism with its emphasis on the scientific method, and the philosophy of Pragmatism with its emphasis on the usefulness and consequences of ideas led the way in this fight for practicality. Neither the traditional aims of the English schools, nor the more practical aims of the German universities seemed to fit. What was needed was something uniquely American. In the Reorganization of Our Colleges, Clarence Birdseye made this observation in 1909 about the

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[1]Veysey, The Emergence of the American University, p. 61.

[2]I. W. Howerth, "An Ethnic View of Higher Education," Educational Review, XX (November, 1900), 354.

[3]Reverend Isaac Hopkins, "Relation of Higher Technological Schools to the Public System of Instruction," Journal of Addresses and Proceedings of the National Education Association (1887), 161.

aims of American higher education:

> It is now time for us to work out new ideals of the American College and University which, while standing on earlier foundations, shall be the products of and in entire accord with our own modern civilization and social and educational conditions. Let us not be ashamed if this be a typically American business reorganization of our institutions of higher learning, closely following the plans which have been so successful in our great commercial corporations, and using the same human agencies which have so often succeeded in other fields.[1]

His remarks help us to understand, to some degree, why the American university took on an organizational structure not unlike that of large corporations.

As this pressure from outside the university walls increased, it gave these institutions a new sense of community responsibility. No longer could the university community sit smugly inside the "ivory tower" and remain isolated from the world outside. The president of one of our large universities said, "Under conditions such as these the ideal of education swings far away from the ideal of life."[2] This idea of preparation for the real life gave American higher education quite a different direction than it had previously had.

Living in a country that has had this kind of utilitarian direction to its higher learning for nearly a century, one is apt to lose his appreciation for the earlier aims of our colleges. DuBois tells us that, "American higher education has undergone radical change during this century."[3] Indeed it has. He goes on further to describe what

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[1]Clarence Birdseye, The Reorganization of Our Colleges (New York: Baker and Taylor, 1909), p. 367.

[2]Elmer E. Brown, "The University in Its Relation to the People," p. 299.

[3]Eugene E. DuBois, "Crisis and Change in the Administration of American Higher Education," The Journal of Education, CLIII, No.2 (December, 1970), 3.

college was like at the turn of the century. "The typical American college in 1900 was small, rural, liberal-arts oriented, and in many cases, church-related."[1] The aims of education up to this time are aptly summed up by this rather typical statement of the period.

> American scholarship, thru its ministry in the universities, thru its teachings and its teachers, is to remove evil, instruct the ignorant, humanize the brutal, uplift the sensual, broaden the narrow, enrich the poor, elevate the low, make natural the unnatural and the human divine.[2]

With goals as grandiose as these, it is little wonder that the American colleges failed to fulfill them.

As philosophy of our educational system was being debated, the concommitant arguments as to who should be educated, and by whom, were also occupying educators and lay leaders alike. No longer was higher education to be just for the "landed gentry." As the industrial revolution grew, native farmers and city-dwellers, as well as the children of immigrants, saw higher education as the way to a prosperous and secure future. They demanded a kind of institution and curriculum substantially different from the existing models.

In seeking ways to provide the kind of institution in demand, educators experimented in many ways. The use of electives gave them the opportunity to experiment with the curriculum; the founding of scientific schools gave them the opportunity to experiment with the sciences; and the application of the Morrill Act gave them the opportunity to try new kinds of practical education. Consequently, a great diversity in the form of the American university developed. Some church-

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[1] Ibid.

[2] Charles Thwing, "The Functions of a University in a Prosperous Democracy," Journal of Addresses and Proceedings of the National Education Association (1901), 169.

related schools and private colleges remained virtually unchanged, if this was the wish of their governing bodies. Others, in order to protect themselves during this time of change, inaugurated modifications in thier mode of operation. Still others became almost totally dissimilar from their earlier form.

Led by the Midwestern states, the peculiarly American institution known as the state university--a public, tax-supported, and usually land-granted institution--evolved. This provided healthy competition for the private college which now had to seek additional funds to keep up with its new neighbor. These state universities, since they were public, had to respond to the public's demand for the kind of higher education they thought most useful. The administrators and faculty had to look to the body-politic for their support. Therefore, higher education had to convince the taxpaying community of the value of needs as they arose. These state universities, from the start, offered a more practical curriculum than their private contemporaries.

In the meantime, the private and church-related schools were taking on a new look. As DeVane said:

> The immediately striking fact is that by 1900 the larger colleges, especially those that were parts of universities, were rapidly coming under secular control. . . . The main advantage of such secular control of the boards of trustees was in gathering and management of financial resources, both of which were badly needed.[1]

The real importance of the private university was that it could provide needed reform without having to answer to a public constituency. This meant that courses of study important to the trustees, and those with

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[1]W. C. DeVane, Higher Education in Twentieeth-Century America (Cambridge, Mass.: Harvard University, 1965), p. 30.

a legitimate interest in the individual institution, could be pursued. Birdseye insisted that, "Such a plan must provide for training accurate and fine scholars, broad thinkers, patriotic and efficient citizens, splendid professional men, and leaders in every walk of life."[1] In a later chapter, we shall see that this gave the industrialists an opportunity to promote such needed reform as was forthcoming in technical education.

Devane tells us that the word curriculum means "race course", and judging from the speed with which the curriculum grew in this century, it appears an apt definition.[2] Until this time, the course of study for college students had consisted of the traditional four-year programs built around the Trivium and Quadrivium of European models. But, cracks began to appear in this classical tradition. Darwinsim had weakened the influence of religion, and pointed up the importance of natural science. There even seemed to be a need to specialize in one or more of these sciences. Schools like Rensselear Polytechnic Institute (1824), Massachusetts Institute of Technology (1865), and Brooklyn Polytechnic Institute (1854) led the way in private technical education. Harvard had its Lawrence Scientific School (1847) and Yale had its Sheffield Scientific School (1847), but the trend was toward incorporating these subjects into the regular business of the college itself.

The land-grant colleges were offering much in the area of the mechanical arts and in technical education. They had liberally inter-

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[1]Birdseye, The Reorganization of Our Colleges, p. 370.

[2]Devane, Op. Cit., p. 17.

terpreted the language of the Morrill Act of 1862 and were providing the kind of practical education sought by engineering students. Until this time, the mechanics arts had to struggle for a place in the college curriculum, but Justin Morrill swept the controversy aside. Lest there be any doubt as to his intentions, Morrill said, "The act of 1862 was intended to give those whose lives were to be devoted to agriculture or the mechanic arts or other industries, embracing much the largest part of our population, some chance to obtain a liberal and practical education."[1]

This opened the door for a movement to have electives in the college curriculum. Given respectability by Eliot of Harvard, this movement grew until it became so haphazard that the value of a college education itself was threatened. In 1883, Thwing, citing the positive values of electives said, "The most delightful feature of the history of college education in America is the constant expansion of the curriculum. . . . Never more rapid has been this enlargement and improvement than in the present decade."[2] The choice of electives and the reasons for having them were not the same in all colleges. In some institutions, electives were designed to allow limited freedom of choice between similar courses. In others, the elective system allowed one to specialize in a field of interest. Still other schools allowed electives only for seniors; while at others, the choices were so unlimited as to produce utter confusion. Never-

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[1]William Beardshear, quoting Justin Morrill a few years before Morrill's death, in the "Function of the Land-Grant College in American Education," p. 475.

[2]Charles Thwing, American Colleges: Their Students and Work (New York: G. P. Putnam, 1883), p. 1.

theless, this was probably the greatest change in the character of American higher education. According to Hofstadter and Hardy:

> By the end of the first decade of the twentieth century, when the elective system had reached its apogee, its benefits were widely agreed upon. It had blown through the American college like a gust of fresh air, and had swept swept out innumerable features of the old regime that could hardly be justified--its rigidity, its archaic content, its emphasis on discipline and memory rather than inquiry and criticism, its tendency to constrict the lives of faculty members as well as students by limiting their opportunities to deepen themselves in a special field of learning.[1]

Between the end of the Civil War and the start of the First World War, then, American higher education underwent its greatest transformation. Because of the social forces and profound changes in both the philosophy and the need for a truly American system of university education, institutions--and the curriculum they offered--were radically changed from the European models upon which they were originally founded. Some universities depended financially upon a generous and intelligent legislature; others, upon a generous and intelligent community; a number, upon one or more wealthy financiers; and others upon an interested industrial partner. A few still depended upon the fund-raising ability of a church. But, whatever the constituency upon whichthe university depends, this fact remains:

> Humanity progresses because it receives the resultant of all the past. Education purifies, refines, ennobles, and enriches this resultant and then passes it over to the future. Such is the work of the university in a prosperous democracy.[2]

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[1]Hofstadter and Hardy, Development of Higher Education, p. 53.

[2]Thwing, History of Higher Education, p. 447.

Three-fourths of this century are nearly gone and yet, the controversy between the classicist and the utilitarian still rages--perhaps, it always will and always should. One thing is certain, however, whatever else happens, American higher education is profoundly more utilitarian than it was before this century began, and it is likely to remain so. Perhaps the only reason that could make us return to the classical tradition would be an end to the necessity to work.

CHAPTER III

DEAN SCHNEIDER'S IDEA

Nothing is so powerful as an idea whose time has arrived.
--Goethe

In the United States, the practice of work-oriented education was split between these two schools of thought at the beginning of the century: (1) that the schools should maintain their own shops, duplicating as much as possible actual factory conditions, or (2) that the students should use their vacation periods to acquire the necessary practice. Superimposed on these two modes of operation were the continuation or evening schools of part-time instruction for full-time workers. In the engineering colleges, there was much discussion regarding curriculum change, in order to make the instruction more relevant to actual situations in the field, and regarding the possibility of extending the standard engineering course to five years in order to accomplish this task. Marston said:

> It now seems probable that the present will prove to be a memorable date in engineering education, marking the close of its first great epoch, and the beginning of a second still greater.
>
> During the first epoch, technical education has fought its way to a recognized equality with other education, and in the ideals of education, has placed "to do" on a par with "to know."[1]

With this introduction, Dean Marston went on to describe the alternatives available to engineering education, namely, optional five-year courses,

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[1] A. Marston, "Five Year Engineering Course of Study," Journal of Addresses and Proceedings of the National Education Association (1908), 1181.

six-year engineering courses, and even a seven-year program. In the face of these kinds of alternatives, engineering colleges were seeking ways to extend the curriculum without greatly increasing the amount of time necessary to earn the degree.

As this controversy continued, there was a movement in the general direction of looking at education in terms of a life-career, beginning to take hold in the colleges.[1] Educators like Eliot of Harvard, Adams in Wisconsin, Harper of Chicago, Jordan at Stanford, and Dabney in Cincinnati were promoting college education that was practical and related to one's career. The elective system allowed those who could not choose a career yet, to experiment in different areas until a decision could be made. At the secondary level, vocational education was starting to find its way into the curriculum. In general, students needed to find ways to finance their education, as well, so that they could continue after high school. Many graduates would go to work in a trade or vocation, only to save enough money to return to school for the technical skills so dearly needed. A professor of mechanical engineering in one Midwestern university summed the situation up in this way:

> It has been suggested, possibly by others as well as this writer, that if the regular course of study could be spread out over five years, and the schedule arranged so that students could have their classroom and laboratory work come at consecutive hours, so as to economize their time and permit them to devote a half-day at a time to money-earning occupations, more students would complete the course and fewer drop out for lack of adequate financial means.[2]

With ideas such as this--a chance for students to take time out

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[1]Charles W. Eliot, "The Value During Education of the Life-Career Motive," Journal of Addresses and Proceedings of the National Education Association (1910), 133.

[2]William T. Magruder, "The Five-Year Courses," Proceedings of the Society for the Promotion of Engineering Education, XVII (June, 1909), 129.

of their programs for work; a system of education geared to one's life work; an extension of the curriculum to five years to permit the acquisition of skills necessary in engineering; and experiments with ways to make the classroom work more relevant to actual conditions--the door was opened for young instructor named Herman Schneider to propose his "Cooperative Plan."

His Early Years

It is impossible to discuss the cooperative plan of education without some consideration for the life of the originator of the idea. "Who can divorce the river from its source?" said Parke Kolbe, the president of Drexel Institute and a life-long friend of Dean Schneider.[1] Schneider's idea was the product of his background and his philosophy of life blended with his experience and tempered by the realities of the world in which he lived and worked. As Kolbe said, "From out of the chaos of innovation in educational method, from amid the unnumbered hordes of real and pseudo-educationists, there arises at long intervals a man so commanding, so rich in ability and achievement, that lesser men must join to do him homage. Such a figure was Herman Schneider."[2]

The idea for a cooperative program was the creation of his own thinking and study. Both Tucker[3] and Smith[4] referred to released time courses being operated in Scotland and England prior to the turn of the century on the "Sandwich Plan" but to call them precursors of Schneider's plan would be presumptious indeed. In fact, Balfour tells us that the

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[1]Parke R. Kolbe, "Educational Aspects of the Cooperative Course," p. 657.

[2]Ibid.

[3]W. Henry Tucker, "British Sandwich Courses," Journal of Cooperative Education, VI, No. 1 (November, 1969), 39.

[4]Smith, "Cooperative Work Programs," p. 16.

Technical Instruction Act of 1889 which became law for England, Ireland, and Wales, said in part, "It shall not include teaching the practice of any trade or industry or employment."[1]

The idea for the cooperative program was only part of the story, however. Its success was the direct result of Schneider's zeal in promoting his creation. He was described in an editorial as "a man with the fervent soul of a prophet."[2] Schneider believed that good could come from any situation if the problem of failure was correctly analyzed. This philosophy of life is repeated over and over, as we shall see, in his writings.

Whether or not the idea of a cooperative program is original with Schneider should not concern us here. There is some evidence to show that the principles embodied in his program were tried, in other ways, elsewhere in the world. But cooperative education, as we know it today and as it has developed in the United States is the direct outgrowth of Schneider's plan. In a similar instance, there is adequate evidence to show that if Charles Darwin had not published his "Origin of the Species" when he did that someone else might have done so, since other scientists were led to the same conclusions at approximately the same period in history.[3]

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[1]Graham Balfour, The Educational System of Great Britain and Ireland (Oxford: Claredon Press, 1903), p. 106. Several other authors refer to the Sandwich Plan operating in Glasgow before 1900, but it appears that the only operational program was probably a half-time, alternating program in marine engineering at the University of Glasgow (mentioned by Kolbe, without confirmation of its existence, in Parke Kolbe, "Educational Aspects of the Cooperative Course," School and Society, LI (May 25, 1940), p. 658) and based upon the British Admiralty Schools Plan discussed in Smith, "Cooperative Work Programs," p. 16.

[2]American Society of Mechanical Engineers, "Cooperative Education," Mechanical Engineering, XIX, No. 8 (August, 1927), 930.

[3]A. Franklin Schull, Evolution (New York: McGraw-Hill, 1951), p. 20.

But Darwin is rightfully considered the father of modern evolutionary thought and Schneider is properly recognized as the founder of cooperative education. His biographer, Clyde Park, tells us that nowhere in the world was cooperative education practiced before Schneider introduced his plan in Cincinnati in 1906.[1] This study has uncovered a number of work-oriented programs, many of which were mentioned in the previous chapter, but none was similar enough to be called a forerunner to Schneider's cooperative plan.

A study of this nature cannot do justice to Dean Schneider by trying to present his life in a few brief pages, but since the purpose is to discover the history of his idea, we will limit our discussion of his life to those events which have the most significance to our purposes.[2] Herman Schneider was born in the coal-mining town of Summit Hill, Pennsylvania on September 12, 1872. His father was of German descent, as his surname implies, and his mother was of Dutch and English descent typical of a great many Pennsylvania families. Those who knew him said he had the personality characteristics of both the English Quaker and the German Scientist. He was endowed with a fine analytical mind, which he used energetically to follow a problem from the question to its ultimate solution. At the same time, he possessed a gentleness of understanding and a love of art and music. Above all, Herman Schneider liked people, and their problems would usually become his problems. Perhaps the description Schneider himself gave of a character from his childhood he later wrote about can be used to describe Schneider as well.

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[1]Clyde Park, "Genesis of the Cooperative Idea," Journal of Engineering Education, XXXIII (January, 1943), 410.

[2]A detailed study of the life of Schneider can be found in Clyde W. Park, Ambassador to Industry: The Idea and Life of Herman Schneider (New York: Bobbs-Merrill, 1943).

> His controlling passions were the destiny of the United States and a personal God to whom he could talk about daily affairs. He rarely argued or defined or affirmed these, but he lived them every day. He took them so thoroughly for granted that those with whom he came in contact took them for granted too.[1]

As a young boy, he worked in his father's store after school, and when he reached the age of fourteen, his father having died, Herman received permission from his mother to take a job in the mine as a "breaker boy." In this capacity, his job was to clean the coal and sort it according to size. This had to be done by hand, and was tedious, back-breaking work for ten hours a day. Schneider did not remain as a "breaker boy" for long, however. His schooling and his ability to apply this knowledge, coupled with his willingness to work, soon caught the attention of the one-armed boss carpenter of a mine construction gang. He used Schneider chiefly as a helper-errand boy and gave him encouragement to pursue a career in engineering. On this job, Herman's tasks were to cut patterns for his boss, and in so doing he learned a great deal about construction and its design problems.

When he was sixteen, his mother enrolled him in the Pennsylvania Military Academy at Chester so that he might further his education and prepare for college. One of his older brothers had attended Lehigh University and Herman wished to follow in his footsteps. To do this, he would need the kind of mathematical training provided at this academy.

Two years later, Herman Schneider entered Lehigh in the program in engineering and architecture. Little did he know at the time that his enrollment marked the beginning of a series of events that would

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[1]Herman Schneider, "Arthur McQuaid, American," The Outlook, CXVII (May 23, 1917), 145.

ultimately result in the formulation of his cooperative plan. These events occurred quite by accident, but are no less significant. The first was his introduction to Professor Mansfield Merriman, who not only taught him Civil Engineering, but became his mentor as well. Under his tutelege, Schneider learned a system of attacking problems analytically beginning with the main point, then building up the evidence for its proof, and finally establishing the case. In addition, Professor Merriman was very active in the newly formed Society for the Promotion of Engineering Education. Later in his career, it would be Merriman who would invite Schneider to come back to the faculty of Lehigh University, and the Society that would give him the platform to promote his cooperative program. However, as the fall shadows lengthened on the Lehigh campus in 1890, the thoughts that filled young Schneider's head were those typical of most freshmen. Perhaps one such thought was to find some kind of part-time employment to help defray his expenses and, more importantly, to give him a chance to practice this profession he had so eagerly chosen.

It was in this search for employment that Herman Schneider met William Leh, an architect and engineer with an office in town, who employed him during his spare time. This second event was no less propitious than the first, for this experience would allow him to learn engineering from the "practical side." It gave him an opportunity to serve "an apprenticeship not unlike that of other young men who were 'reading law' or medicine in the offices of a practitioner in order to fit themselves for a professional career."[1] A warm relationship was developed with this man, as with Professor Merriman, which was to last

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[1]Park, Ambassador to Industry, p. 27.

for many years. However, work and school did not occupy all of Herman Schneider's time. Park tells us that he was active in many of the campus organizations, particularly those involving music and writing. For the remainder of his life both of these activities would play an important part.

The spring of 1894 was not the most opportune time to be graduating from college. The country was in the midst of a depression which had begun a year earlier and unemployment was widespread. Undaunted, though, Schneider decided to open his own office as an architect, and chose the growing town of Cumberland, Maryland as his location. Actually, it had been suggested to him by one of his classmates as an area that was gaining prominence in manufacturing and the shipment of coal. It is not surprising that Schneider would feel comfortable in this setting, for Cumberland must have reminded him somewhat of Summit Hill--a town situated on the crest of a ridge with coal as one of its principal industries.

As might be expected of a man who was starting his own business and was enthusiastic about his career, Herman Schneider worked himself too hard. Although he took time to be involved in many community activities, he soon found that his health was suffering from his overwork. He had never been an unusually healthy person, but then, he had never been particularly sickly either. Throughout his life, his health would be a problem to him, especially when he was forced to spend too much time indoors. Schneider seemed to thrive on energetic, outdoor work. With this in mind, and to regain his health, he accepted an offer to join his older brother, in 1897, building bridges for the Short Line Railroad in Oregon. Apparently the change was just what he needed, for two years later he returned to Pennsylvania and, at Merriman's suggestion, accepted a position as an instructor in civil

engineering at his alma mater. Schneider could not know what was in store for him, but the words from one of his favorite poems would seem appropriate:

> Have hope, O friend! Yea,
> Death disgraced is hard;
> Much honour shall be thine.[1]

His Philosophy of Work

Herman Schneider's whole life was one of devotion to the value of work. Thus, it would be inappropriate to consider the effect of his own experiences on the development of a program to combine study and work without first examining his philosophy of "the natural law of work." This is perhaps best accomplished by studying his writings, both factual and fictitious, for "in all of his writings a basic theme comes through over and over--his emphasis on the enobling quality of work, the value of individual achievement, and blending of study and work. In his own words, 'Work makes the spirit of a man.'"[2]

His basic belief in the importance of work can be seen in this paragraph from a scholarly piece he contributed to the Annals of the American Academy of Political and Social Science:

> The basic object of work is the same as it was in the stone age--to obtain food and shelter. Work is the fight for self-preservation and self-perpetuation; the strategy of the fight furnished and still furnishes the stimulus for brain growth. . . . Today the immediate problem is the same but we call our problem of getting, "industry and commerce," and our problem of protection, "government."[3]

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[1]Rudyard Kipling, "The Ballard of the King's Mercy," in Verse (Garden City, New York: Doubleday, Doran and Co., 1931), p. 279.

[2]Joseph E. Barbeau, "The Spirit of Man: The Educational Philosophy of Dean Schneider," Journal of Cooperative Education, VII, No. 2 (May, 1971),3.

[3]Herman Schneider, "Education and Industrial Peace," Annals of the American Academy of Political and Social Science, XLIV (November, 1912), 124.

Schneider's life was an example of the strength with which he held these beliefs. He never backed away from controversy, nor did he ever shun hard work. "Now, there is a natural law of labor which operates as surely as the law of gravity. . . . The substance of the law of labor is work; Work and you will reach a higher mental development; cease work and you will degenerate."[1]

Park tells us of one incident that illustrates Schneider's feeling in regard to work. During the Depression, a young artist came to the dean's office in search of employment. Dean Schneider might have been interested in him, but he lost his opportunity in the following conversation. The young man said, "I am an artist, you understand, and I cannot do any drudgery." At this point, Park says, the dean terminated the interview with the comment, "I'm sorry, but we all do a certain amount of drudgery here."[2]

Schneider's theory of work divides work into two kinds--"energizing work" and "enervating work." Energizing work is defined as work "still done in the open air, where there is a dependent sequence of operation, involving planning on the part of the worker," while enervating work "has come through the subdivision of labor in factories, so that each worker does one thing over and over in the smallest number of cubic feet of space." Farm work, construction work, many kinds of engineering positions as well as some kinds of indoor work that involve planning,

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[1]Schneider, "The Natural Law of Work," p. 1081.

[2]Park, Ambassador to Industry, p. 107.

[3]Schneider, "The Natural Law of Work," p. 1082.

would be called enervating work. The usual routine work, which has become so prevalent today, such as that of a mill worker or garment worker, would fall into the category of enervating work. Schneider was concerned that the amount of enervating work was on the increase while energizing work was rapidly decreasing. This worried him because he was convinced that the morals of a community were related to the kind of work that it did. His law of work applied not only to individuals but to communities and nations as well. Even in his less serious writings, his emphasis on this aspect of the importance of work can be readily seen. During the first world war, Dean Schneider wrote a series of six copyrighted short stories for a popular magazine, The Outlook. These stories described an acquaintance from his childhood, whose characteristics he embellished somewhat, named Arthur McQuaid, American. "Arthur, as he would have phrased it, 'sairved the Lord' as a cobbler in a Pennsylvania mining town."[1] In one of these stories, Arthur was chastizing a philosopher in a local university who did not believe in the worth of manual work and said, "I know yer kind. Yer name is Legion; yer soul cherishes no wairk that ye've hallowed with yer own sweat, and yer heart cleaves to no country that ye've enriched with a sacrifice."[2] According to history, Schneider tells us, there is

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[1] Herman Schneider, "Arthur McQuaid, American," The Outlook, CXVII (May 23, 1917), 145. This was the original one in the series. The others were: "A Shaft of Light," CXVII (August 22, 1917), 616-21; "The End of a Day," CXVIII (January 23, 1918), 138-40; "From Every Stormy Wind That Blows," CXVIII (July 10, 1918), 420-25; "A Psychological Episode," CXIX (April 16, 1919), 647-54; and "Children of the Centuries," CXIX (April 23, 1919), 697-703. One of these stories was on the honor roll in Edward J. O'Brien's best American short stories of 1917.

In 1918, The Outlook published a letter from a minister, the Reverend James Robinson, who had remembered Arthur McQuaid and Herman Schneider. Both had been members of his congregation.

[2] Schneider, "A Shaft of Light," p. 621.

ample evidence to show that people who refuse to work, "fall into swift decay."[1]

It would be impossible to have so strong a belief in the value of work without a concommitant belief in the importance of the individual. Dean Schneider spoke of it often. In an interview for the American Magazine, he described the way he felt.

> You must know at least twenty persons whom you would class as failures--defeated men, struggling along in a hopeless, hang-dog fashion, often haunted by the fear that they will lose the very jobs that give so little and take so much.
> But these men are not failures. Fifty chances to one they are merely misfits; they have not found their places. They are victims of blind education, slipshod employment, and their own inability to analyze themselves.[2]

In articles like "Selecting Young Men for Particular Jobs" and "Are You A Square Peg in a Round Hole?" and his book, The Problem of Vocational Guidance,[3] he continually addressed himself to the problem of the individual in society. "There is a new psychology of work. One of its most important principles is that the man who makes a failure on one job is likely to make a success of the job of the opposite type."[4]

The Social Darwinism which preached "survival of the fittest" made it mark on his philosophy as well. Schneider pointed to ways in which leaders would emerge by the "natural selection" process of hard work.

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[1]Schneider, "The Natural Law Of Work," p. 1081.

[2]Merle Crowell, "Preventing Men From Becoming Misfits," American Magazine, LXXXIII (April, 1917), 49.

[3]Dean Schneider wrote much in the area of vocational guidance, but those referred to here are: "Selecting Young Men for Particular Jobs," American Machinist, XXXVIII, No. 15 (April 10, 1913), 597-600; The Problem of Vocational Guidance (New York: Frederic Stokes Co., 1938) and the reference in the following footnote.

[4]Herman Schneider, "Are You a Square Peg in a Round Hole?", American Magazine, LXXXIII (April, 1917), 49.

In "Education and Industrial Peace" he has this to say about the selection of leaders.

> The leader emerges from the masses. There is no known rule of heredity for personality, for intrinsic quality. There is a divine right of leadership, but it is conferred in utter disregard of wealth, creed, name, condition or castes,--and it is non-transferable. The personality which creates leadership pushes instinctly above the dead level, above mediocrity; and the fight up through the mass is what gives the leader the strength to supplement personality.[1]

In applying this to engineering education, he said, "Why an engineering college should not adopt Nature's rigorous methods of finding leaders is not evident, and if engineering education should be for any particular purpose, it should certainly be for the training of leaders in production and construction."[2] It follows rather logically that any system which emphasizes the worth of the individual in society must also recognize the importance of achievement to the individual's success.

But this tenacious belief in the value of hard work does not preclude an enjoyment of life and its leisurely pursuits. "Surely education can perform no greater service to humanity than to seek out men of ability and train them to devise and direct in such a way that life, liberty and the pursuit of happiness shall be the natural result of the day's work."[3] Schneider loved his leisure time as much as he loved his work. As was described earlier in this chapter, he enjoyed music and art, and while dean of engineering at Cincinnati, he did much

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[1]Schneider, "Education and Industrial Peace," p. 125.

[2]Schneider, "Notes on the Cooperative System," American Machinist, XXXIII, No. 2 (July 28, 1910), 149.

[3]Schneider, "Education and Industrial Peace," p. 129.

to see that engineering students developed an appreciation for the fine arts. However, to find time for this activity, one must arrange his life so that it is a balance between work and play.

A discussion of Schneider's philosophy would not be complete without his description of how this balance might be achieved. In 1918, Dean Schneider wrote an editorial for the Engineering News-Record entitled "Bandar-log or Bee?"[1] In it he talks about a monkey living in a tribe or "Bandar-log", as Kipling called them. "He does anything he wants to, when he wants to, and as long as he wants to." But at the end of the day, he hasn't progressed any farther than he was in the morning. On the other hand, the bee "insists on organization by function. His philosophy is self-sacrificing, vigorous, and stern--a Spartan philosophy applied to production." But this system does not allow for leisure and it does not allow for division of the honey according to each one's contribution. The Queen Bee gets it all. There is no discussion about it. It would be nice, said Schneider, if nature had seen fit to develop a species with the best of both worlds--"a sort of bandar-bee." It would solve most of the ills of society. The bandar-bee would spend part of its day working very efficiently, and the rest of its day just having fun. "He would be an intense individualist--so intense that in order to have the maximum number of hours a day for individualism, he would sink his individualism when he came to his production and distribution hours, and be an intense cooperator."[2]

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[1]Herman Schneider, "Bandar-log or Bee?" Engineering News-Record, LXXX, No. 12 (March 21, 1918), 540.

[2]Ibid.

His Idea

It should not surprise us that this man who placed such a high value on work and who had gained much valuable experience from working himself, should start to think about how these principles might be applied to young engineering students, particularly since most of them, on graduation, were ill-equiped to function as engineers in the field. Shortly after his return to Lehigh University in 1899, Herman Schneider presented a paper to the faculty in which he outlined the germ of his cooperative idea--as yet not fully developed, but emphasizing practical experience. Unfortunately, a copy of this document no longer exists, but Clyde Park quotes from it in his biography of Dean Schneider.[1] In essence, Schneider conceived a plan "to have shops owned and operated by the college and manned by a skeleton force of trained workers who would supervise the actual work as performed by the students who would alternate half days."[2] However, this would be an expensive undertaking for any college and, at best, would only simulate actual working conditions. Worcester Polytechnic Institute, in Massachusetts, actually instituted such a program the following year and operated a production shop, successfully, for many years.[3]

Schneider's idea, though, was rejected by the Lehigh faculty and so two years later, he began what he called "a pedagogical research into

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[1]Park, Ambassador to Industry, p. 53. The paper under discussion was entitled, "A Communication on Technical Education" and Park quotes from a revised edition of Schneider's earlier work.

[2]Kolbe, "Educational Aspects," p. 658.

[3]Baker, "Engineering Education in the U. S.," p. 53.

the problem of engineering education."[1] To gather this data, Schneider travelled up and down the eastern part of the United States, during his free time, talking with professional engineers, industrial managers, and engineering faculty mambers. He was trying to understand what was needed, that was then missing, in the education of potential engineers. Parke Kolbe, a close friend of Schneider, described his research:

> As a result of his investigation, he found out that most of the men studied had either (1) worked while attending college (2) worked during vacation or (3) stayed out of college a semester or a year and worked in order to earn money to continue their studies. He did not conclude from this that every student who did outside industrial work necessarily became an outstanding engineer, but he was convinced that there was a distinct advantage to be gained in working during the period of college training.[2]

But even with careful analysis of his data, Schneider could not quite put his finger on how to attack the problem. Then, the idea came to him almost by surprise. Park describes the event for us:

> One evening, after teaching hours, he (Schneider) was pondering this question while he walked across the Lehigh University campus. Suddenly, he was startled out of his reverie by the blast of a Bessemer converter at a nearby steel plant. In that moment, an idea came to him that offered a possible solution to his problem. Here was a huge modern industry existing side by side with a university--a vast industrial laboratory filled with the latest, the most expensive equipment, made to order for his scheme of training.[3]

So, the cooperative idea was born. Cooperative, because it would require the cooperation of both the university and industry. "Hitching

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[1]Raymond Walters, "Herman Schneider's Contribution to Engineering Education," The Bent of Tau Beta Pi (February, 1943), 12.

[2]Kolbe, "Educational Aspects," p. 658.

[3]Clyde Park, "Genesis of the Cooperative Idea," Journal of Engineering Education, XXXIII, (January, 1943), 413.

the school and shop abreast, rather than in tandem; combining theory and practice."[1] As he developed the idea further, it seemed to Schneider that engineering should be learned the way doctors and lawyers learn their professions--by practice under actual working conditions.[2]

Lehigh University once again missed its opportunity. The faculty rejected this new proposal. Undaunted, and convinced of the soundness of his plan, Schneider presented the idea to the University of Pittsburgh, realizing that the diversity of industry in this city would provide ample opportunities for employment of their students. Learning from his previous experience at Lehigh, he discussed the program with both school officials and with industrial leaders. As a result of these discussions, Schneider received favorable response. It appeared that the battle had been won. But things never came easy to Herman Schneider, and this time was no different. Just as the prospects for success looked better, Andrew Carnegie announced that he would provide money to endow a technical institute in Pittsburgh. With this windfall, Pittsburgh had no time to bother with a cooperative program. Industry turned its attention to the building of Carnegie Institute and the University of Pittsburgh would have to wait eight years before they would have a cooperative program.

However, Herman Schneider would not wait eight years. It was obvious to him that his colleagues at Lehigh saw a different purpose for the

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[1]Herman Schneider, "Notes on the Cooperative System," American Machinist, XXXIII, No. 2 (July 28, 1910), 148.

[2]Herman Schneider, Thirty Years of Educational Pioneering: The Philosophy of the Cooperative System and its Practical Test (Cincinnati: University of Cincinnati, 1935), p. 13.

university than did he, so in 1903, Schneider accepted a position to teach Civil Engineering at the University of Cincinnati. He had actually had two offers of employment, but a large industrial city like Cincinnati seemed to offer the best chance of success for his cooperative program.

Shortly after his arrival in Cincinnati, Dr. Charles Dabney, an eminent educator from the University of Tennessee was elected president of the University of Cincinnati. When he took office in July of 1904, Schneider must have sensed that he found a sympathetic ear for his cooperative program. Dabney's educational philosophy, coupled with his view of the goals of a municipal university is described by McGrane. To Dabney, the duty of the University of Cincinnati was to

> serve the needs of all the people in the community. It should become the directing force in the intellectual, political, industrial, social and religious life of the community; and therefore, should work in close relationship with the City government, the public schools, the manufacturers, professional groups, and working classes.[1]

In 1904, the College of Engineering was separated from the College of Liberal Arts, (until that time it had operated as a department within the Liberal Arts school) and Schneider presented a paper to Dr. Dabney entitled, "A Communication on Technical Education" in which he outlined his scheme for the training of engineering students. This met with Dabney's approval and eventually evolved into a formal proposal for the Board of Trustees. But before this, Schneider went about Cincinnati discussing this idea with as many industrial leaders as would listen. In so doing, he obtained the support of three in

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[1]Reginald McGrane, The University of Cincinnati: A Success Story in Urban Higher Education (New York: Harper, Row, 1963), p. 197.

particular that would help his cause: Mr. John Manley, secretary of the Cincinnati Metal Trades Association; and Mr. E. F. DuBrul and Mr. Frederick Geier, local manufacturers, both of whom were members of the the Board of Trustees of the University. Mr. DuBrul tells us of the feelings of the faculty and the Board at this time.

> Among the faculty, there was but little encouragement. Only a few of them had been out of a job themselves and only to those few did the scheme seem good. To the others, it was not academic. Among the manufacturers, his success was better, but here too, he met many rebuffs. Those who had no college training and who had tried college men with poor results thought it was too academic.[1]

There was no stopping now, however. McGrane tells us that Schneider's greatest achievement was "in the indomitable fortitude with which he correlated work with industry in an orderly way and convinced the world it would work."[2] He also tells us that Schneider said he would never forget the resolution that was passed by the Board of Directors in 1906, which stated: "We hereby grant the right to Professor Schneider to try, for one year, this co-operative idea of education at the University of Cincinnati and for the failure of which we will not assume responsibility."[3] With this "vote of confidence" the cooperative system was launched. Herman Schneider's "big dream" had come true.

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[1]E. F. DuBrul, "A Young Instructor and His Big Dream," American Magazine, LXVIII (May, 1909), 18.

[2]McGrane, The University of Cincinnati, p. 212.

[3]Ibid.

CHAPTER IV

COOPERATIVE EDUCATION BECOMES A REALITY

It is a good thing for a man to sweat his way toward the truth.
--Herman Schneider

The Cooperative Plan

What was this "cooperative plan" that the Board had so reluctantly approved? What was the underlying principle and how would it operate? Schneider, himself, tells us that, "the theory of the cooperative system is very simple. Engineers, like doctors and lawyers, are trained for practice. Judgement based upon experience must supplement theory."[1] Up to this time, engineers were trained in the traditional four-year system which had evolved in American higher education. Engineering education, at the college level, was an outgrowth of the liberal arts college--as in the University of Cincinnati itself. However, in adapting the engineering curriculum to the four-year model, consideration was not given to the special problems that engineering practice presented. In his "pedagogical research," Schneider had found that "the practice of engineering cannot be learned in a university; it can be learned only where engineering is practiced namely, in the shop or field. The theory underlying the practice may be obtained outside of the university, but can be best obtained in an organized system of

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[1]Herman Schneider, "Backgrounds of the Cooperative System," Mechanical Engineering (July, 1935), 418.

instruction under skilled teachers."[1]

Several approaches were possible. The traditional way of teaching the theory in college and then having the engineer learn his "practice" on the job after graduation had certain drawbacks. It was expensive for the industries involved, and would not allow the prospective engineer to "try" his profession before completing his education. Another option, mentioned in a previous chapter, was to use the summer vacation periods for this purpose. The main difficulty in this system was that the placement tended to be haphazard and the work may or may not be related to the student's career. In addition, there has always been a certain reluctance on the part of industry to provide the kind of summer experiences necessary for training purposes. The time-worn apprenticeship system was not operating at the college level and in fact, had declined in popularity due to the increasing complexity of industrial organization. Still another method, the one most commonly used was for the college to build an elaborate system of shops that would be used to simulate actual working situations. But even this system had its problems. The actual working conditions could not be duplicated unless a realistic production shop could be operated. This was impractical, and would clearly be in conflict with the purposes of most colleges. The cooperative system seemed to offer the best alternative. "Why not combine the apprentice course and the school work into a six-year course? Then, instead of paying the school for

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[1]Schneider, "Notes on the Cooperative System," p. 148.

shopwork, the students would be earning money at the same time that they were getting experience."[1] There would be an opportunity for selecting the best candidates for engineering work based, not only upon academic performance, but on "practical" performance as well. This would also enable the school to concentrate on the teaching of theory and the industries to handle the practical experience. A system would have to be developed to coordinate the two, but all in all it seemed to offer promise.

Schneider's first proposal envisioned the "Co-op" students, as they were called, to "work one-half day at their factories and spend the other half at the university. . . . we aim to have the young men at the university three hours every morning studying technical and cultural subjects, who will work every afternoon at various plants in the city."[2] The initial selection would be made by the owners of the local industries "from their works of such young men as in their opinion have within them a degree of engineering ability."[3] There were two points of objection in this original proposal. In the first place, the faculty objected to the fact that the students were apprentices in the factories, and that non-academic people would be training the future engineers. In addition, they would be giving up their part in the selection proceedure.

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[1]Park, "The Cooperative System," p. 8

[2]Herman Schneider, "Technical Education for Cincinnati," American Machinist, XXVIII, No. 2 (October 19, 1905), 541.

[3]Ibid.

Secondly, the industries objected to the fact that the "co-ops" would be at school in the morning--their most productive time--and at work in the afternoon when they were least needed. The editor of the American Machinist magazine, in which Schneider's first proposal appeared, suggested in an editorial that if Schneider would make two modifications in his plan, he would have something that could revolutionize engineering education.[1] The suggestions were, (1) to divide the class into two groups which could alternate with each other, (it was he who first referred to the groups as "A" and "B"--a designation that has persisted until today), and (2) to have these two alternating groups provide coverage at the shop on a full-time basis. The plan, as adopted at Cincinnati, incorporated these suggestions, having the two groups alternate on a weekly basis and using Saturday for the purpose of coordination between the student leaving the job for school and his alternate coming to the job the next week. This alternating system operated for nine months, with the students working full-time during the summer.

In addition to the problems referred to above, Park describes another problem which Schneider, now Dean of the College of Engineering, encountered in trying to recruit employment for his students.

> Most of these men (the manufacturers of Cincinnati) showed interest and faith in the scheme as a general proposition; but when it came to adopting it as an actual business policy, some were

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[1] American Machinist, XXVIII, No. 2 (October 19, 1905), 542.

> chary of so radical an innovation. Typical of their objections to accepting cooperative apprentices were the statements that two men could not work alternate weeks at one machine, and that a crowd of "rah-rah" boys would disturb the shop organization. The latter objection coincided remarkably with the fear which had been expressed by some of the university instructors, that a group of "boiler makers" would destroy the scholastic atmosphere of an educational institution.[1]

This fear of the "boiler makers" was felt by the rest of the student body as well, partly because the students in the cooperative courses were different--different in their personalities, different in their backgrounds, and different in their motivations. This group was different for another reason. They were self-conscious. As an experimental program, the cooperative program was being studied, observed, talked about and written about. The "boy in the blue blickey," as one author described the co-op student, was ostracized from the bulk of the student body.[2] This "exclusiveness" persisted until the program itself was firmly established. Writing in 1916, Park tells us that "the old animosity between the two groups of students has disappeared. . . . A 'co-op' was president of the senior class in 1915, [and] the captains of both football and basketball teams are 'co-ops.'"[3]

The first cooperative program was six years for the baccalaureate and "just as thorough, broad and cultural as the regular four-year course "[4]

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[1]Park, "The Cooperative System," p. 10.

[2]Ibid., p. 11.

[3]Ibid.

[4]Herman Schneider, "Two Years of Cooperative Engineering Courses at the University of Cincinnati," Proceedings of the Society for the Promotion of Engineering Education, XVI (1908), 279.

and was operated in mechanical, electrical and chemical engineering. In that first class, there were twenty-eight students when the school opened in the fall. Sixty had applied and forty-five were accepted. But since the early programs required the freshmen to spend the summer preceding their entry into the program working in local shops, only twenty-eight survived this weeding-out process. Park says that "this requirement discouraged many prospective members of the first group of cooperative students as it has in the case of all subsequent classes."[1] However, if this was the case, it was not apparent in the growth rate experienced in Cincinnati. In the second year, there were eight hundred inquiries and applications, out of which sixty were selected and forty-four survived the summer in the shops.[2] The following year some two thousand inquiries were recorded, "but owing to the crowded condition of the university . . . only forty-four were selected and forty remained in the fall.[3]

Many felt that the real test of the cooperative system would come in time of a business depression, "many critics predicting that when a panic came the manufacturers would send all the students back to the university and that would be the end of the course."[4] However, a depression did occur in 1908, and in the fall of 1909 when the effects of this depression were still being felt, the University of Cincinnati

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[1]Park, "The Cooperative System," p. 10.

[2]Herman Schneider, "Three Years of the Cooperative Courses," American Machinist, XXXII, No. 2 (September 9, 1909), 444.

[3]Ibid.

[4]Schneider, "Three Years of Cooperative Courses," p. 444.

had requests from the manufacturers for 100 additional students. The university accepted seventy-four of approximately three thousand interested candidates. The appeal of the cooperative idea had certainly been established. A year later, Cincinnati changed its course so that the students would complete their work in five years of eleven months, instead of the six years of nine months, thus saving a year in the process. Most baccalaureate cooperative programs have operated on a five-year basis since that time.

The real success of the cooperative system has been its adaptability to a variety of situations, majors and institutions, its ability to allow students to try an occupation before completing their education, and its appeal to industry on sound economic grounds. Dean Schneider recognized these aspects early in his development of the program.

> Four years of experience in operating our co-operative courses, leads me to expect failure for any cooperative scheme which is not made commercially profitable for the shops, which does not start the student at the very bottom of the practice of engineering, which eliminates the hard work that the regular mechanics do or the regular hours they maintain, or which modifies the shop discipline simply because the apprentices are university students. Any attempt to evade the disciplinary conditions which have through the ages made strong men, while it may be an advance on the old four-year system will not meet the expectations of its sponsors.[1]

At another point in the same article, Schneider discusses the flexibility of his system.

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[1]Herman Schneider, "Notes on the Co-operative System," Proceedings of the Society for the Promotion of Engineering Education, XVIII (1910), 397.

> Further, in co-operative law, medical, commercial, agricultural, architectural or mining courses, it is evident that the amount and character of practice would vary greatly. I believe, and sincerely hope that there will be many forms of the co-operative system adopted by different institutions and out of all these we shall probably get, by experiment, the best forms.[1]

Schneider had no idea how his cooperative system would spread, and how many diverse forms would develop. His prophecy has been fulfilled two-hundred fold, not only in the fields he mentioned but in countless others as well.

His Idea Spreads

To say that Herman Schneider was a prophet is not only to compliment him on his ability to foresee what would happen to his cooperative plan, but to describe the kind of zeal he had in promoting this idea. The fact that the cooperative system became known and accepted outside of Cincinnati was due almost single-handedly to the efforts of this man. Everywhere he went, he talked about his cooperative plan. He wrote about it in numerous scientific and educational journals. Of the early schools that adopted this plan, they all emphasized that their plan was based upon that developed by Schneider. A cursory examination of the chart in Appendix II reveals that no less than eight of the principal administrators of cooperative programs in the first ten schools to adopt this system were acquaintences, former colleagues, or former students of Dean Schneider. Names of prominence in cooperative education, as well as in engineering education, like Dean Gowdy and President Walters who followed Schneider at Cincinnati; Parke Kolbe, who was president of the University of

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[1] Ibid.

Akron, later president of Brooklyn Polytech and still later of Drexel Institute; Dean Ayer of Akron who initiated their cooperative program; Dean Freund who was associated with the program at the University of Detroit from 1932 to 1952; Dean Seulberger of Northwestern; Dean Disque at Drexel; and Cecil Kapp, one of the early administrators of cooperative education at Georgia Institute of Technology and later director of cooperative education at Drexel University and Max Robinson of Evansville University--all were infected with Schneider's enthusiasm for this new form of education. In many cases, he was the consultant that established the program at other institutions, both at the college level and at the secondary-vocational level. Even at the time of his death in March, 1939, Schneider was working as consultant with the Technological Institute of Northwestern University, assisting in the development of their "co-op" program.

In the spring of 1908, a Mr. Daniel Simonds, a manufacturer from Fitchburg, Massachusetts, attended a meeting of the metal manufacturers in New York city. Dean Schneider was a speaker at this conference, discussing his cooperative plan. The idea appealed to Simonds as a method of training high school students in the vocational education program. He presented this idea to the school committee on his return, and a committee was sent to Cincinnati to inspect the work at the university. This committee reported favorably on their observations and they "invited him [Schneider] to prepare a scheme of industrial education that would fit their local needs, and, with the assistance of the school authorities, organized the first public

cooperative high school in this country."[1] The program began in September 1908 "after the city council, school department and employers decided to adopt the cooperative industrial plan," with the students paired and alternating on a weekly basis.[2] "The main idea of this course is to provide an opportunity for learning a trade and obtaining a general education at the same time."[3] Actual operation consisted of four years of high school, the first of which was spent wholly in school, and the next three years alternating on the cooperative program, using the summers as a work period. As in Cincinnati, Saturdays were used for the two boys to coordinate for the next week. This was a paid program, with the boys beginning at ten cents per hour as sophomores, and gradually working up to twelve and one-half cents in the senior year. The average high school student in this program in this period could earn $550.00 in his last three years of high school. It is also interesting to note that the program was controlled by the school department, and not by the cooperating employers. This is a significant point, because most of the high school programs that followed were based on the "Fitchburg Plan," and the precedent for control was firmly established in the school department. As in its predecessor, the University of Cincinnati, a "coordinator" was hired whose task it was to see that the school work and shop work were integrated as much as possible. This concept of the coordinator is also basic to a successful cooperative program.

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[1]William Mearns, "The Boy in the Blue Blickey," p. 9.

[2]Mathew McCann, "The Fitchburg Plan," p. 7.

[3]Ibid., p. 8.

The purpose of including this description of the "Fitchburg Plan" is not to present a history of cooperative education in the vocational schools, but rather, to show that these programs developed simultaneously with those in the colleges, and that they were based upon Schneider's model as well. In fact, cooperative education in vocational high schools and "continuation schools," as some were called, developed at a much more rapid rate than in the colleges. The following year saw a program started in Beverly, Massachusetts, and later in York, Pennsylvania. By 1913, there were programs operating in St. Louis, Cleveland, Rochester, and Providence, in addition to those already cited. Even Dean Schneider's own city of Cincinnati had adopted a cooperative program in their public schools. Writing in the Saturday Evening Post, Mearns tells us that, "Mr. J. T. Renshaw had conducted a private school so well on this basis that Superintendent of Schools Dyer bodily annexed the school and the principal."[1]

The development of cooperative programs in the vocational high schools has been both a boon and an enigma to cooperative education at the college level. In some cases, these vocational high school programs provided cooperative education with a broader base of support, but it has also worked to the hinderance of its acceptance in higher academic circles because of its identification with vocational education.

Before World War I, interest in the cooperative program grew on many fronts, not just in Fitchburg and Cincinnati. On July 2, 1908 at the American Institute of Electrical Engineers convention at

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[1]Mearns, "The Boy in the Blue Blickey," p. 9.

Atlantic City, M. W. Alexander of the General Electric Company proposed a similar cooperative program to be operated by the Massachusetts Institute of Technology in conjunction with General Electric at Lynn, Massachusetts.[1] After directing the graduate apprentice program for many years in that company, he had come to the conclusion that:

> while the system has been successful in turning out many high-class engineers, the combination of four years of mental activity in college with two subsequent years of shop work is not the most effective method of training since it fails to give that insight into the practical side of electrical engineering and into the proper relation of the economic forces of an industrial field.[2]

But, because of the depression of 1908, the acceptance of Alexander's program would have to wait until after World War I.

The effects of this depression did not dampen the spirit of the Polytechnic School of the Boston Y. M. C. A. Evening Institute, for the following year Frank Palmer Speare decided to begin a four-year daytime program in engineering on the cooperative plan. This school, which later became Northeastern University, was destined to become the largest private university in the United States, and the largest cooperative program in the world. In his history of Northeastern University, Marston says:

> It is impossible to know why the Boston YMCA initiated the second program of co-operative education in the United States. The "Cincinnati Plan" was receiving attention and comment, both favorable and unfavorable, and it is probable that Mr. Speare saw the plan as an interesting challenge and another opportunity

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[1]Magnus W. Alexander, "The New Method of Training Engineers," Transactions of the Institute for Electrical Engineers, XXXVIII,

[2]M. W. Alexander, "Cooperative Method of Training Engineers," Engineering Magazine, XXXV (August, 1908), 770.

> for development. Clearly, the plan would provide technical training for young men who because of limited financial status were unable to pay the costs of education at the established schools of engineering, and these were the young men in whom the Institute had been interested since its founding.[1]

In 1909, however, little notice was taken of this event. Northeastern was a "small, unheralded engineering school" in an area known for its institutions of higher learning. Three aspects of this beginning were significant. In addition to the fact that Northeastern University would become a leader in cooperative education, it represented the establishment of Schneider's program in another college. In another way, it represented the establishment of cooperative education in the East--the bastion of traditional educational practices. And lastly, it represented the beginning of a pattern of assistance to the cooperative education movement by the Young Men's Christian Association. Many of the cooperative schools, continuation schools, colleges and technical institutes were started by this organization. A great deal of the success of cooperative education is directly attributable to its efforts.

Students who are enrolled in cooperative programs today accept their program as a matter of fact, and few realize that the idea was not welcomed with a great deal of enthusiasm at the time of its introduction. Its worth had yet to be proven. The reluctance of both business and college leaders to its acceptance in Cincinnati has already been mentioned.[2]

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[1]Everett A. Marston, Origin and Development of Northeastern University: 1898-1960 (Boston: Northeastern University, 1961). p. 28.

[2]For a good picture of the arguments both pro and con see the discussion following: Schneider, "Two Years of the Cooperative Program," Proceedings of the Society for the Promotion of Engineering Education, XVI (1908), 294-306, and Schneider, "Notes on the Cooperative System," Proceedings of the Society for the Promotion of Engineering Education, XVIII (1910), 405-423.

The final endorsement, qualified as it was by the Board of Trustees, did not win the battle for the cause of Cooperative Education. An opposing view is cited below:

> One of the chief arguments used by employers opposed to the program was that they felt students who alternated between work and study would not be productive enough on the job. Many of them believed there would be a lot of waste time when alternates switched places on the job. The general attitude of employers was, "It won't work."[1]

However, four companies felt differently and agreed to give the program a try, and Northeastern placed its first eight cooperative students. In the second year, eighteen "co-ops" started and growth continued each succeeding year. By the entry of the United States into World War I, the program had grown to 120 students placed in some 42 companies.[2]

Another year saw another college adopt the cooperative program. Once again, in an industrial area, a need for cooperation between industry and university in the training of engineers was recognized. After the rejection of Schneider's plan eight years before, the city of Pittsburgh began its own version in 1910. According to Hallock, the director of this program after World War I, there were four aims in establishing the cooperative plan at the University of Pittsburgh. The first was to have students become accustomed to working with all classes of workers and "observe methods of handling groups of such men for advancement of a given industrial enterprise. . . . and appreciate the application of the humanities in our present scheme of production."[3]

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[1]"Northeastern's Half Century of Cooperative Education," a commemorative magazine published by the Northeastern News, April 22, 1960.

[2]Ibid.

[3]John W. Hallock, "Some Results of the Cooperative System," Proceedings of the Society for the Promotion of Engineering Education, XXIX (1921), 85.

Secondly, the program would present an opportunity for each student to come in contact with a variety of industries and allow him to make a more intelligent choice as to the one in which he would like to make his career. In the third place, the cooperative student would become familiar with "the application of some of the fundamental processes of manufacture and the coordination of these processes with the theory as taught in the classroom."[1] And lastly, the program would assist in developing "men capable of assuming executive positions in industry."[2] The aims and philosophy of a cooperative program could not be expressed in a clearer or more concise fashion.

The program, as established at the University of Pittsburgh, introduced several modifications over the "Cincinnati Plan." The calendar year was divided into four three-month terms, with the two groups of students alternating on a twelve-week system for four years. This represented the first attempt at lengthening the period of alternation, and using the entire calendar year to shorten the number of years to the degree. In addition, the freshmen and seniors spent the whole year on academic studies, with the work periods occurring only during the two middle years. In this way, the academic requirements could be met in four years.[3] Today, most of the cooperative colleges have adopted the "quarter" system in the five-year program, but in 1910, this was a very innovative approach.

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[1] Ibid. [2] Ibid.

[3] F. L. Bishop, "The Cooperative System of Engineering Education at the University of Pittsburgh," Proceedings of the Society for the Promotion of Engineering Education, XIX (1911), 480-485.

Dean Bishop of Pittsburgh, however, saw this in a different light. "The adoption of a co-operative system, I believe, is a logical development of engineering education in the United States."[1]

It was clearly recognized by the early pioneers in cooperative education that there were many people who benefited from such a program. The student benefits because he has the opportunity to receive practical experience in the application of theory. He benefits from the guidance and counsel that the work experience provides, both in terms of career selection and in the development of interpersonal relations. And last, but by no means least for some students, it provides an opportunity for him to earn part of his expenses for his degree.

The institution benefits in many ways. The faculty "are kept constantly on the alert to keep abreast of latest practice and to incorporate such data in their courses."[2] It is this practice that needs most attention today. Having a cooperative program keeps the institution in touch with the "world outside" through faculty contacts with employers. Lastly, it gives the faculty a way of evaluating the effectiveness of their teaching. But the employers also benefit in a cooperative program. An employer of cooperative students in 1911 said:

> . . . it is strictly a business proposition. He does not undertake it from any motive of philanthropy. He expects a fair return in labor for the money that he expends. . . . He offers the student an opportunity to see and study his works and methods while carrying on certain advertising features, as the students

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[1] Ibid., p. 481.

[2] Hallock, "Results of the Cooperative System," p. 38.

> will know of his product. . . . He is afforded the opportunity of looking over these men and picking out such of them as appear particularly good.[1]

Now, what effect does the cooperative program have on the workers in the shop? The greatest benefit seems to come in the form of improving their aspirations for their own children. They come in contact with college students who are working for their own education. At the same time, Hallock tells us, they help the student. "They prick his self-conceit and improve his perspective."[2]

The Status of Cooperative Education

By World War I

By the time the United States entered the World War, there were seven cooperative programs in operation--six in colleges and universities and one in a two-year technical institute (see Appendix I). In addition to those programs already discussed, Georgia Technological Institute (1912), the University of Akron (1913)[3], the University of Detroit (1911)[4] and Rochester Athenaeum and Mechanics Institute (1912) were started. In less than ten years, cooperative education had spread from the mid-West to the East and the South (see Appendix III).

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[1]Bishop, "Cooperative System," p. 483.

[2]Hallock, "Some Results," p. 87.

[3]There is some confusion over the date when cooperative courses first began at Akron. Two early studies, Smith's and that by the Society for the Promotion of Engineering Education give 1914 as the date, while the Cooperative Education Directory gives 1913 as the date cooperative education began.

[4]The University of Detroit presents a similar problem; early studies list 1915 as the starting date for "co-op," while the Directory shows 1911. The date in the directory was chosen because this is the date the school itself publicizes.

It was operating in public, municipal universities such as Cincinnati and Akron; in a privately endowed university in Pittsburgh; in a state supported technical institute, Georgia Institute of Technology; in a sectarian university such as the Jesuit university in Detroit; in a Y. M. C. A. institution called Northeastern College; and in a non-degree technical institute at Rochester (see Appendix IV). The programs were offered initially in electrical, mechanical, and chemical engineering, with civil engineering being added to list in 1909 at Cincinnati and in Northeastern. With the exception of the general engineering course at Georgia Institute of Technology, these were the only fields in which cooperative courses were offered prior to the first world war. In the 1970-71 academic year, all of these initial colleges were still operating some form of the cooperative plan except the University of Pittsburgh which discontinued it in 1935 (see Appendix I).[1] Using the placement figures in the Directory of Cooperative Education for the year 1968-69, these six schools account for almost one-third of all cooperative students placed during that academic year. In other words, six of the seven colleges that started cooperative programs before World War I have continued in their position of leadership in the movement.[2]

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[1]The University of Pittsburgh had other brief affairs with "co-op" in the fifties as a graduate program and in the sixties as an undergraduate program under President Litchfield.

[2]According to the figures in the Directory of Cooperative Education, 15,725 students were placed by these schools out of a total of 49,246 placed for the 1968-69 academic year.

It would not be appropriate to enter the next phase of the development in cooperative education without mentioning two other events of importance. In 1911-12, Paul Hanus of Harvard directed a study of the "Educational Aspects" of the schools of New York city. He persuaded Dean Schneider to make a study of vocational education in the world's largest city, and his findings were published in a volume entitled, Education for Industrial Workers in 1914.[1] In this book, Schneider recommended a system of cooperative education, similar to that in Fitchburg, Massachusetts, but with additional courses in other areas such as retailing, the garment industry, and in grocery stores. "The essential factor is the agreement on a broad and thorough apprenticeship, with coordinated schooling, carefully checked and maintained in actual operation by the school authorities. The various cooperative plans (at Fitchburg, Massachusetts; Solvay, New York; Lewis Institute, Chicago) have demonstrated that the course is commercially profitable to the manufacturer and to the student, and economical for the school."[2] An editorial in the June 26, 1915 issue of Scientific American claims that cooperative education began in the public high schools of New York city in February 1915.[3] These programs continued to operate successfully until sometime during the late thirties or early forties when they were discontinued due to lack of interest on the part of both industry and the school department.

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[1]Herman Schneider, Education for Industrial Workers (New York: World Book Co., 1915).

[2]Schneider, Education for Industrial Workers, p. 60.

[3]"Learning Through Doing," Scientific American, CXII, No. 26 (June 26, 1915), 624.

The second event of importance was the statement made by Dean Schneider before the Committee on Education of the House of Representatives in January of 1914. At that time, and for many years, there had been a great deal of interest by many educators in the establishment of a national university. Discussions waxed back and forth over this issue, but just before the World War, the interest had reached a new high and it appeared that the United States might indeed have a national university in the nation's capital. In this connection, Dean Schneider presented a statement advocating that the national university adopt the cooperative system to train government employees.[1]

> The application of the co-operative plan to a national university having as one of its functions the training of government experts can be considered most succinctly under the three basic principles of the system--selection, practical training, and coordinated instruction.[2]

In another section of this article he emphasized that:

> The particularly significant fact established in the eight years of this work is that the plan is entirely feasible and desirable, not only in the foundries and machine shops and on railroads and outdoor construction, but also in research laboratories, designing departments and public-service positions of real responsibility.[3]

Even though in 1970 the federal government was the largest single employer of cooperative students, the dream of a cooperative school in the nation's capital to train government workers is no more a reality than a national university.

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[1]Herman Schneider, "Statement Before the Committee on Education," Journal of the House of Representatives, Sixty-third Congress, Jan. 26, 1914.

[2]Herman Schneider, "Training for Public Service," Engineering Record, LXIX, No. 15 (April 11, 1914), 417.

Dugald C. Jackson, for many years associated with the cooperative program at the Massachusetts Institute of Technology, described the growth of cooperative education during this period in this way.

> Dean Schneider has proved the worth of the idea, and it also has been abundantly proved elsewhere, when judiciously carried out. But anyone who goes into this idea, thinking it easy, is on the road to sacrificing the educational influence, as it requires a large amount of effort to maintain side by side the work in the workshops and the work of a highly and truly scientific character. It is possible to do it and when it is done I am satisfied we obtain the finest and most desirable education for men who are going into manufacturing industries which can be produced.[1]

This is where cooperative education stood as the Kaiser's army swept over Europe. It was not long before the United States was called to do her part, and cooperative education, like all other endeavors not related to the war effort, came to a halt.

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[1] Discussion following presentation of the paper by Hallock, "Some Results of the Cooperative System," Proceedings of the Society for the Promotion of Engineering Education, XXIX (1921), 93.

CHAPTER V

PATTERNS OF GROWTH:

COOPERATIVE EDUCATION FROM

WORLD WAR I TO THE DEPRESSION

Hail to the skillful, cunning hand;
Hail to the cultured mind!
Contending for the world's command,
Here let them be combined.
--W. D. Parker
1897

Effects of the World War

As the first World War spread over Europe, college enrollments in America declined rapidly. Because of the demand for engineer troops, the first effect "was to begin sweeping away into the Army a large proportion of the students and faculty."[1] Fearing that there would result a serious shortage of the necessary scientists and engineers, the federal government began to grant deferments to those students pursuing careers in these critical skills. This measure was not sufficient, however, so the government modified the Selective Service Regulations in December, 1917 and established the Engineers Enlisted Reserve Corps which permitted students "to remain in school until they completed their course."[2]

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[1]Anson Marston, "The Effect of the War Upon Engineering Education in the United States," Proceedings of the Society for the Promotion of Engineering Education, XXVII (1919), 276.

[2]F. L. Bishop, "Engineering Education," U. S. Office of Education Bulletin, 1919, No. 19 (1919), 4.

This program remained in effect until the establishment of the Student Army Training Corps (SATC) in the fall of 1918. Under this program, many campuses were virtually turned into Army training schools complete with barracks, uniforms and bugle calls. The engineering schools were particularly effected because this World War, if it accomplished nothing else, pointed out the importance of engineering science and its practical applications to any modern government. Many engineering schools like the University of Cincinnati and Northeastern University were closed to all usual academic pursuits, including their cooperative programs, and were operated almost solely for the benefit of the war effort. At Northeastern, as at other schools, "World War I was necessarily a disrupting interlude in the progress of the school."[1] The SATC assigned volunteers as enlisted men on active duty at the various colleges "to utilize effectively the plant, equipment, and organization of the colleges for selecting and training officer candidates and technical experts for service in the existing emergency."[2] This was the forerunner of the Reserve Officers Training Corps which was later established by the National Defense Act of 1920.

The SATC, however, was short lived. It began in the fall of 1918 and due to the war's end was completely demobilized by December twenty-first of the same year. At its peak, some 140,000 students were participating in this program and the methods used were new and revolutionary. Because of "the unhappy experience of the SATC days," these

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[1]Everett Marston, "Origin and Development of Northeastern," p. 28.

[2]Arthur M. Greene, "Engineering Education After the War," U. S. Office of Education Bulletin, 1921, No. 50 (1921), 2.

methods were soon abandoned and everything returned to pre-war conditions.[1] Marston describes the problem for us:

> The entire lack of acquaintanceship of educators with military customs and of military officers with educational customs, the great and terribly fatal influenza epidemic in October and the unexpected collapse of the war early in November, with the accompanying demoralization of demobilization--all these combined to make S.A.T.C. success hopeless.[2]

Even though the SATC was not well thought of in academic circles, it did have an impact on the engineering college enrollments. During the war, the Selective Draft Law made this program desirable because it was, for many, the only way to stay in school. For others, it provided a way to avoid being placed in a combat unit if and when one was drafted. After the war enrollments continued to increase, not only because of the returning veterans, but because it "left at the end of the war a large number of young men in the freshman classes, which otherwise might have been almost empty."[3] The war had demonstrated the need for increased numbers of technically trained personnel in private industry and in the government. World War I had been an engineer's war, and the victory had been an engineer's victory.[4]

Consistent with this new federal interest in technical training, and as a result of pressure from the Commission on National Aid to Vocational Education, Congress passed the Smith-Hughes Act of 1917,

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[1] Ibid., p. 10.

[2] Anson Marston, "The Effect of the War," p. 277.

[3] Ibid.

[4] William Kerr, "Education and the World-War," Journal of Addresses and Proceedings of the National Education Association, (1917), 111.

"to provide trade and industrial education."[1] In order to qualify for aid to pay teacher salaries, however, the instruction given had to be "less than college grade and shall be designed to meet the needs of persons over fourteen years of age who are preparing for a trade or industrial pursuit."[2] While this had no direct bearing on the colleges and universities, it did impart considerable impetus to the growth of cooperative education in the secondary schools, most notably in the South. The Southern States Office of Education organized cooperative part-time programs, alternating on a half-day basis in both junior and senior high schools in most of the southern states.[3] This Act also stimulated some introduction of cooperative education into the technical institutes since coordinator salaries could be supported out of these funds. Rakestraw reported that there were 78 secondary schools in 21 states with cooperative programs in 1928. Four years later, 167 such schools were listed.[5] This was the peak of the growth of cooperative education in the secondary schools for,as the depression deepened, many programs were discontinued due to lack of placement opportunities.

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[1]American Association of School Administrators, The Federal Government and Public Schools (Washington, D. C.: The Association, 1965), p. 19.

[2]Ibid.

[3]Charles M. Arthur, "Cooperative Plan," School Life, XIX (March, 1934), 153.

[4]C. E. Rakestraw, "Cooperative Part-Time Education," U. S. Federal Board for Vocational Education Bulletin, No. 30, (1928), p. 35.

[5]Smith, "Cooperative Work Programs," p. 26.

Before leaving the discussion of the effects of the war on the colleges, it is interesting to describe one small program that was put into effect during the war, at the insistence of Dean Schneider. When World War I broke out, Dean Schneider was summoned to Washington, as were many other technical educators, and pressed into government service. He was given the position as head of the Industrial Service Section of the Ordnance Department with the task of developing and implementing policies with regard to employment management.[1] In this capacity, Schneider devised a plan whereby college professors and other white-collar workers not directly involved in defense production could provide many man-hours of manual labor in an Emergency Labor Reserve. The idea, according to Park, was to have these workers employed in simple tasks, like unloading freight cars on Saturdays and Sundays as a help in alleviating the manpower shortage. The pay earned would be donated to various war-relief agencies such as the Red Cross, French Orphans, Belgian Relief and so forth.[2] It is impossible to estimate the number of people and man-hours that were ultimately involved in this project.

New Types of Cooperative Programs Begin

The growth of cooperative education from World War I to the Depression is significant, not only in terms of the number of institutions (28) that started programs during this period, but, more importantly,

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[1]Mont Schuyler, "Washington Making Preparations Against Industrial Unrest," Engineering News-Record, LXXX, No. 7 (February 4, 1918), 294-296.

[2]Clyde W. Park, "An Emergency Labor Reserve," American Machinist, XLIII (November 14, 1918), 909-910.

in terms of the variety in kinds of programs and kinds of institutions that became involved. Schneider's vision of cooperative education encompassing many disciplines and operating in many diverse ways became a reality in the twenties.

There was a continuation of the growth that had begun prior to the World War in the engineering schools and in urban universities. Marquette University in Milwaukee and Drexel Institute (now University) in Philadelphia both inaugurated cooperative programs in 1919, followed by New York University in 1921. Lafayette College in Easton, Pennsylvania and Harvard University had brief experiences with "co-op" during this time, but Newark College of Engineering operated a co-op program from 1919 until World War II. Fenn College (now a part of Cleveland State University, 1923), Southern Methodist University (1925), the University of Louisville (1925) and the University of Tennessee (1926) are still operating successful cooperative programs in engineering as well as in other fields.[1] Because of the success of its cooperative program, the University of Cincinnati discontinued its full-time program in engineering after the war, and in response to the government's request "to introduce business training for engineers as required work," introduced a new program in Commercial Engineering which combined these subjects in an integrated plan.[2] The engineering curricula in which cooperative programs were offered were expanded to include: electrical, mechanical, civil,

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[1]Lafayette College operated a cooperative program in mechanical engineering from 1922 to 1926 and Harvard University one in electrical, mechanical and civil engineering from 1919 to 1923 (see Appendix I).

[2]Anson Marston, "The Effect of the War," p. 279.

chemical, architectural, industrial, aeronautical, and mining engineering, as well as options in adminsitration, textiles, geological engineering, general engineering, and applied arts.[1] These programs operated on the system as originally conceived by Schneider although there was variation in the length of the alternating period and the number of years to the degree, depending upon how many work periods were included.[2] New forms of cooperative education were being tried in these and other institutions which eventually resulted in the articulation of definite types of programs.

In 1917, eight years after Alexander's proposal for such a program, the Massachusetts Institute of Technology began a "selective" cooperative program with the General Electric Company that incorporated both the bachelors' and masters' degree programs. Because of America's entry into the world war, however, the first class did not really get under way until 1920. "The selective cooperative programs have a unique place in this evolution. By their selective process, they invite and attract students of potentially graduate calibre."[3] At M. I. T., the cooperative student spends a total of five years in school--in each of the last three years, the student spends half of his time on his cooperative assignment--and at the completion has earned a Masters' degree.

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[1]Society for the Promotion of Engineering Education, "Cooperative Method of Engineering Education," p. 45.

[2]For a good picture of how the various programs operated during this period, see F. E. Ayer, "Cooperative Engineering Education," Journal of Engineering Education, XXI (November, 1930), 210-212.

[3]A..L. Dowden, Hand In Hand (Medford, Mass.: Gordon and Co., 1958), p. 35.

The program differs from the ones previously discussed in four distinct ways: (1) the student is selected by the school and the company for participation in the "co-op" program; (2) the student spends all of his work periods with one employer; (3) while on the job, there is greater emphasis on learning and less on production; and (4) the Masters' degree is awarded upon completion.[1] "The cooperative course at M. I. T. was started mainly to train particularly high-grade engineers for creative design and original research, tasks demanding the utmost theoretical knowledge."[2] The important point is not that it is selective, nor that it is a graduate program, but that it represents a different form of the cooperative system. "There is no standard cooperative plan of education. A cooperative course takes on the ideals, purposes, and standards of the school and companies cooperating."[3]

The University of Cincinnati, by eliminating its full-time program in engineering adopted a "mandatory" plan of cooperative education. In such a program, the student is required to take the cooperative plan because no other plan is offered. Northeastern University operated its cooperative program on this basis from the beginning of its engineering school. In other programs, and at other institutions, the student may be offered a choice between the cooperative plan, usually five years, and the conventional four-year, full-time program. In such a system, the cooperative plan is "optional." In a selective cooperative plan,

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[1]W. H. Timbie, "Distinctive Features of a Cooperative Course in Engineering," Engineering News-Record, LXXXV, No. 3, (July 15, 1920), 119.

[2]W. H. Timbie, "Cooperative Courses in Colleges," School and Society, XXVIII (December 8, 1928), 711.

[3]W. H. Timbie, "Cooperative Course in Electrical Engineering at the Massachusetts Institute of Technology," Journal of the American Institute of Electrical Engineers, XLIV, No. 6, (June 1925), 613.

the institution, the cooperating employer, or both exercise some selectivity over who is chosen for participation.

For the most part, though, the programs discussed to this point have been operated only in engineering disciplines. It was during the "roaring twenties" that cooperative education began to spread to other fields of endeavor. And of all the programs begun during this period, none received more publicity than that started at Antioch College in Yellow Springs, Ohio. Antioch was the first school to use the "co-op" plan outside of the engineering field. True, there had been some experimentation in this regard, but no formal programs were inaugurated. Kolbe tells us that the University of Cincinnati had some Nursing students on a cooperative plan as early as 1915 in a Cincinnati hospital and that the Cleveland School of Education experimented with placing females in social work positions for the city of Cincinnati in the same year.[1] There is some evidence to suggest that New York University may have begun a cooperative plan for business majors five years earlier than the start of their engineering program, but this could not be substantiated. But, all of these early attempts at expanding the range of cooperative education were forgotten with the advent of the "Antioch Plan" and the publicity it received. In fact, cooperative education, formerly referred to in popular magazines as the "Cincinnati Plan," became known as the "Antioch Plan." There are still many who believe that cooperative education began at Antioch in 1921.[2]

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[1] Park Kolbe, "The Part-Time Principle in Education," Educational Review, L, (November 1915), 348-352.

[2] The Carnegie Commission Report, "Less Time, More Options" previously referred to, implies on page 40 that cooperative programs in the U.S. began in 1921 at Antioch.

The essential differences between the cooperative plan as developed at Antioch and that developed in Cincinnati are more profound than the simple differences which occur between engineering schools and liberal arts colleges ordinarily. The emphasis at Antioch was not as much on the specific vocational skills that could be learned nor the amount of money that could be earned, but rather on the importance of the work experience to the understanding of life. This philosophy is best described by the president who brought about the reorganization of Antioch, Arthur E. Morgan.

> The heart of the Antioch idea is this--Effective human personality is made up of many factors, some of which are ignored in conventional education. It is the business of education to determine what factors enter into well-developed personality and to arrange a program which will provide as nearly as possible the experiences, opportunities, disciplines, and incentives which will tend most to full and effective development. It is because conventional education does not provide adequate occasion for the development of some fundamentally essential qualities that the Antioch program extends beyond formal academic work and includes experiences that place new tests upon personality and demand the development of other than academic ability.[1]

In the spirit of its founder, Horace Mann, Antioch in 1921 rejected the traditional ways of preparing young people for life and introduced this innovation. They did believe in educating their students for a vocation, and they recognized the importance of the financial remunerations of this plan, but their interest extended far beyond these considerations. "We insist, however, that merely academic education . . . is not adequate to the complete fulfillment of the cultural ideal . . . the desired insight into the economic basis of civilization comes best when the student worker is placed under

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[1]Comments by Arthur E. Morgan in Horace B. English, "The Antioch Plan," Journal of the National Education Association, XII, No. 10, (December 1923), 404.

the same circumstances as any other employee, working for and earning his wage under the penalty of being discharged."[1] It was Morgan's feeling that the youth of the "twenties," more than those of the two preceeding decades, came to college without the advantages of having worked before. "A very great change in viewpoint is induced in the minds of the students when they cease to be immature wards or parasites, and take their places as self-sustaining members of society."[2] This particular advantage of cooperative education will be expanded upon in a later chapter.

As in Cincinnati, the emphasis of the program was on vocational guidance. As Schneider was concerned about the "misfits" in the technical fields, so too was Morgan concerned about giving liberal arts students some chance to try different occupations, "to analyze the place of these vocations in human affairs."[3] In this respect, the Antioch plan was a novelty, not because it adapted cooperative education to the liberal arts student, but because of the different philosophy under which it operated.

There were many other novel applications of the "co-op" program in the "twenties." Evansville College, which began cooperative programs in engineering in 1920, introduced cooperative education to its teacher education students in 1926. New York University, as previously mentioned, operated cooperative programs in engineering and business administration; Lane Theological Seminary in Cincinnati experimented with "co-op" for theology students from 1926 to the

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[1] Ibid., p. 402. [2] Ibid. [3] Ibid., p. 402.

depression; and the College of Medical Evangelists in Loma Linda, California began a cooperative program for medical students in 1924 (see Appendix I). Dean Freund tells us that even salesmen were trained on the cooperative program at Detroit.[1]

Innovation in the use of cooperative education was not confined to the four-year colleges alone. The funds available under the Smith-Hughes Act provided the impetus for growth in the technical institutes, such as Ohio Mechanics Institute, Detroit Institute of Technology and the General Motors Institute. In some cases these schools later merged with other institutions of higher learning, and others became baccalaureate degree granting institutions. But another form of two-year institution had made its appearance on the educational scene--the junior college.

While junior colleges, as we know them today, were an outgrowth of earlier programs at the University of Chicago under Harper, they had become, at this time, separate institutions organized as private corporations, or under state-control. Their status in the hierarchy of education was confused by the fact that in some states the junior college was part of the system of higher education, while in others it was part of the public secondary school system. It would not serve our purpose here to elaborate the reasons for this confusion, but to assert that this author, as well as most respected educators today, considers the junior college as part of higher education, and for this reason its cooperative programs are included in this study.

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[1]C. J. Freund, "We Make Our Industrial Salesmen to Order; Our Future Salesmen Are Picked While They Are Still Cooperative Students In Our Shops," Printer's Ink, CXLII, No. 1 (January 5, 1928), 17-20.

Prior to 1925, only two junior colleges had begun cooperative programs. One was Garland Junior College in Boston, and the other was Riverside Junior College (now Riverside City College) in California. (See Appendix I). At Riverside, the proliferation of cooperative education to new programs is of greatest interest. Programs, on a cooperative basis, were offered in engineering, architecture, library work, nursing, and business.[1] The program began in 1922 with twelve students on "co-op" and by the Depression there were fifty-one students participating in this program.[2] "The effect of the cooperative training on the junior college has been good," wrote their director of "co-op" in 1932. "Teachers who were at first indifferent, have been won over and all of them are glad to do the extra work necessary to take care of cooperative students on the regular schedule. For one thing, the cooperative students have been harder workers in school than the regular students. The last honor roll published gave the names of one student in eighteen of regular students, and one in four among the co-ops."[3] By the time the stock market crashed, there were cooperative programs in foreign and domestic trade at Marin Junior College in California; agriculture at North Texas Agricultural College; textiles at the Textile Industrial Institute in Spartansburg, South Carolina; and nursing in the junior colleges at Sacramento, San Bernadino, Kansas City, and Grand Rapids.[4]

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[1]"Cooperative Education," Junior College Journal, III (March, 1933), 322-333.

[2]Walter C. Eells, The Junior College (New York: Houghton-Mifflin, 1931), p. 305.

[3]H. H. Bliss, "Cooperative Education," Proceedings of the Society for the Promotion of Engineering Education, XL (1932), 771.

[4]Eells, The Junior College, p. 307.

In the words of Walter Eells, "The Junior College furnishes an excellent opportunity for 'cooperative' education in connection with many courses."[1]

The Status of Cooperative Education By 1930

By the Depression, then, cooperative education was firmly established as a viable alternative to the traditional forms of higher education in the United States. Twenty-eight new programs had been started in the period from the First World War to 1930--five in California, five in the South, six in the East, and twelve in the Midwest, and only two had been discontinued. (See Appendix V). Of the new programs, one-half were in two-year institutions. This brought the number of schools using co-op to thirty-three. But of more importance was the fact that cooperative education was no longer thought of as a program exclusively for engineers. It was shown to have application in many other fields as well. This fact was emphasized by Schneider and some other early pioneers in cooperative education, but was forgotten by most until after the Second World War when the Edison Foundation study again emphasized the applicability of "co-op" in the liberal arts and in the health professions.[2]

As important as the variety of programs in which "co-op" was used, was the variety in administration of these programs. Some schools used the "Cincinnati Plan" which was a mandatory system of cooperative education, in which no choice was allowed--only the cooperative plan was offered. In other, an optional plan, such as that

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[1] Ibid., p. 204.

[2] Ralph W. Tyler and Annice Mills, Report on Cooperative Education: Summary of the National Study (New York: The Edison Foundation, 1961).

at Harvard was in vogue, where the students could choose the "co-op" option if they desired. At others, the Massachusetts Institute of Technology plan of selective cooperative education was the norm, and at the New York University a still different system was employed. Instead of having the faculty teach all of the upperclass courses twice each year, as in most "co-op" schools, the junior and senior courses were alternated, so that only one or the other would be offered in a given year. The obvious disadvantage of this plan is that the sequencing of courses, so important in engineering, was sacrificed for economy of faculty time.[1]

The twenties were also a period in which the philosophy of cooperative education was emphasized. Cooperative Education was viewed more as an educational method and less as a way of learning specific skills and earning money for tuition. While these advantages of the cooperative system were not forgotten, they were de-emphasized, particularly in programs modeled after the "Antioch Plan." The Depression would revive the emphasis on the economic advantages of "co-op" and it would take twenty years to overcome this effect, but in the sixties the emphasis, once again, would shift away from the "earn while you learn" concept to the idea of educating for life.

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[1]R. L. Sackett, "Developments in Co-operative Engineering Courses," Engineering News-Record, XC, No. 24 (June 14, 1923), 1050-1051.

CHAPTER VI

COOPERATIVE EDUCATION MEETS THE CHALLENGE

One must learn by doing the thing; for though you think you know it you have no certainty, until you try.

--Sophocles

The Depression Years

Those who have never operated a cooperative program seem convinced that, while cooperative education might be a good idea during times of plenty, it will most certainly fail during times of severe economic disaster.[1] The critics' voices have been heard in every period of depression and recession since 1908 when cautious administrators at Pittsburg and Cambridge chose to delay the adoption of "co-op" until the economic situation had stabilized. But the severest test yet, was during the Great Depression that began in 1929 and lasted until the Second World War. Less than one-third of the schools offering cooperative courses, though, discontinued them during the Depression, and some twenty-five new programs were begun during this period, of which more than half are still in operation today. (See Appendix I).

When the economic "bubble" burst in October, 1929, its effects were many and varied. Perhaps the farmers were the first to feel the impact as the markets for their produce slowly, but surely diminished.

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[1]F. E. Ayer, "Some Unsung Aspects of Cooperative Training," Proceedings of the Society for the Promotion of Engineering Education, XXI (May, 1931), 625.

Moving to the urban areas was no solution because they added their numbers to the already sizeable population of immigrants and urban poor who were unemployed. The signs had been there before the crash--high unemployment in a time of plenty, increasing use of credit and installment buying, the poor getting poorer and the wealthy putting more and more of their wealth into speculative stocks. However, in the excitement and enthusiasm of the "roaring twenties," no one noticed.

As the Depression deepened and it became apparent that Hoover's prosperity was not "just around the corner" the electorate swept out the Republican administration and opted for Roosevelt's "new deal." The immediate, and perhaps most effective, measures taken by the new administration were to increase government spending and create projects that would put people to work. The National Youth Administration, the Works Projects Administration, the Civilian Conservation Corps, and the Tennessee Valley Authority were just a few of the many work-oriented agencies that were begun. Many of these programs introduced the opportunity for the new agencies to use cooperative students. Cooperative education was used by the W. P. A. and the Federal Works Program (FWP), for example, in the Indian schools as "part of the plan to improve the social and economic position of the Indians."[1]

The Fort Sill Indian School in Comanche County, Oklahoma, developed a program which "reinforces formal studies with practical experience in agriculture, in arts and crafts, and in various other vocations related to community life."[2] It began in the first and second grades, where the pupils were given simple chores to accomplish, and increased in complexity

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[1]H. J. Wharton, "Cooperative Education in the Government's Indian Schools," School and Society, LI (March 23, 1940), 385.

[2]Ibid.

through high school where these students farmed actual acerage and raised productive herds.[1] The students were paid in cash or livestock, as they chose, to provide a start after graduation. Since cooperative education was used exclusively in elementary and secondary vocational education, the program will not be elaborated upon here. This program was cited simply as an example of the varied ways in which cooperative education has been used. The philosophy underlying this program is not dissimilar to that upon which most cooperative programs are built. Sherman said of this program, "No enterprize is undertaken simply for the purpose of earning a dividend. All project work is tied in with school work and the training program."[2]

Dean F. E. Ayer of the University of Akron, the originator of cooperative education at that school and a former colleague of Schneider, described his feelings regarding the effect of the depression upon cooperative education with the following anecdote.

> "What percentage of your cooperative students who should be working are now unemployed?"
> "About twenty-five per cent."
> "Ah! Then the cooperative method fails in times of depression?"
> "In true Yankee fashion let me answer your question with another. What percentage of your 1930 graduates are now unemployed?"
> "I haven't the exact figures, but probably not over half and, perhaps, not more than twenty-five per cent."
> "Ah! Then the full-time method fails in times of depression!"
> Obviously, "No" is the answer to both questions.[3]

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[1] A. Sherman, "Cooperative Education for Farming in Indian Schools," Agricultural Education Magazine, XII (May, 1940), 204.

[2] Op. Cit., Wharton, p. 386.

[3] Op. Cit., Ayer, p. 625.

Jobs for cooperative students were as plentiful, if not more so, than those for full-time employees during the depression. William C. White of Northeastern University described the effects of the business decline on cooperative education:

> In normal times, it has been the experience of the university that from 94 per cent to 100 per cent of the cooperative enrollment . . . have been satisfactorily placed in suitable industrial assignments throughout the year. But, the current business depression produced a decline in the percentage of cooperative students employed, which began in the fall of 1930, and the curve of decreasing placement followed quite closely that of the U. S. Department of Labor, except that the lay-off of cooperative students tended to lag somewhat behind general unemployment. Employers were loath to release their "co-op" and held on to them as long as they could in the hope that conditions would stabilize and then improve.[1]

Throughout the Depression, the most striking phenomenon about cooperative students was the "espirit de corps" that developed. Cooperative directors at many schools made a point of emphasizing this aspect. At Cincinnati, Northeastern, Marquette or Georgia "Tech" it was always the same. "At no time during the entire history of the course at Cincinnati has the morale of the students been better or the academic work so satisfactory."[2] In most schools, the decline was confined to the period from the fall of 1930 to the fall of 1932. After that, the employment situation, for cooperative students, leveled off and then slowly began to improve. As the director of cooperative education at the University of Cincinnati said, "September 1932 was the turning point in our employment situation. From September 1, 1932 until January 1,

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[1]William C. White, "The Cooperative Plan in the Depression," School and Society, XXXVII (January 14, 1933), 66.

[2]George W. Burns, "Effect of the Present Economic Dislocation on our Cooperative Engineering Education," Journal of Engineering Education, XXIV (April, 1934), 559.

1933, our employment situation was stationary; if anything, we made some slight gains."[1]

Why was the effect of the Depression not greater on the cooperative program than on the general employment? What was it about the program that enjoyed the confidence of the employers? Obviously, it was more than a personal like for the students. Industrialists were under much pressure from the unions during the thirties to fill the positions held by the "co-ops" with regular employees. One reason for the continued use of cooperative students was the fact that "the students are recognized as destined not for trades but for engineering and management."[2] The students were training for positions that would not be in competition with those sought by the unions.

Another reason why the employment of cooperative students remained relatively high was the placement of these among so many industries and agencies. "The wisdom of spreading the employment of "co-ops" among a large number of employers has proved itself over and over again in this depression."[3] As one type of industry experienced a decline in hiring, the "co-op coordinator" would seek other kinds of employment for his students. It was not an easy task, and at the depths of the Depression, "co-op" employment dropped to about 50 per cent at most schools. Burns

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[1] Ibid.

[2] F. A. Kartak, "The Cooperative System and Recent Economic and Political Changes," Journal of Engineering Education, XXVI (November, 1935), 260.

[3] Burns, "Effect of the Economic Dislocation," p. 560.

gave us this pessimistic picture of the coordinator's life at this time: "By the dint of hard labor, we were able to land a job or two, only to learn upon returning to the office that perhaps half a dozen students had been laid off that day."[1] This was temporary, however, and the schools responded by allowing the students to remain in school and take courses, if employment could not be found.

The effectiveness of the coordinator cannot be understated. He alone bore responsibility for the placement of these students and, in the last analysis, it was his ability to promote the cooperative plan that kept cooperative education from disappearing during the Depression. "What in many cases is proving of even greater value is a more or less intimate friendship which the coordinator has built up between himself and the various executives he contacts."[2] An important part of his effectiveness was the performance of the students on the job. No matter how efficient the selection and evaluation process of the coordinator; no matter how friendly his relations with an employer; all would have been without result if the past performance of cooperative students had not done so much to "sell" the cooperative idea.

Very closely related to this was the added advantage to employers of many cooperative students' accepting permanent employment with the same firm for which they worked as students. One study made in 1937 showed that 51 per cent of the graduates of cooperative programs from 1928 to 1934 were still working for the employer with whom they had

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[1] Ibid., p. 559.

[2] F. G. Seulberger, "Cooperative Education and the Business Depression," Journal of Engineering Education, XXII (March, 1932), 611.

"co-oped."[1] The employer had confidence in the ability of the cooperative student based upon direct observation and evaluation of his work before the permanent contract was negotiated. Fewer "misfits" were hired by this selection and, at a time when everything had to be efficient, the cost of training and retraining middle management personnel could be minimized. As students, the employees had the opportunity to obtain a realistic appraisal of their chosen field and knew what they wanted after graduation. They also knew what the realities of the employment situation were and how important human relations were to success on any job. J. E. McDaniel of the Georgia Institute of Technology said:

> Although the cooperative student may think he is having the most difficult year of all years to survive, he is perhaps learning more now than ever before from the outside contact with his practice work. A practical application in sociology, or economics, or ethics, or psychology, or in any of the humanities can be experienced in almost any industrial plant of today.[2]

As another cooperative educator said at that time, "It seems clear that engineers, skillful in solving human problems, will be in greater and greater demand."[3]

Cooperative education grew in other ways during the Depression. Engineering was still the predominant field in which cooperative programs operated, but during this period, many new programs were started in liberal arts and in business. Bennington College began cooperative

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[1]L. S. Chadwick and E. L. Osgood, "Do Co-op Jobs Lead to Permanent Employment?" Occupations, XVI (October, 1937), 70-71.

[2]J. E. McDaniel, "Cooperative Engineering Education in the Southeast," Journal of Engineering Education, XXI (January, 1931), 482.

[3]H. N. Cummings, "The Effect of Present Economic Conditions on the Placement of Cooperative Students," Journal of Engineering Education, XXVI (November, 1935), 260.

programs for liberal arts majors that were unique experiments. The programs were patterned, in a general way, after the "Antioch Plan" and allowed the students to utilize the cooperative period to learn about life.[1]

In the business colleges cooperative education became established in the fields of accounting, management, insurance, industrial relations, and fashion and retailing. In 1934, Coleman studied groups of business majors at the University of Cincinnati and at Columbia to see if the cooperative program had any beneficial effect. He listed six considerations which supported his conclusion that, "most urban colleges of commerce should adopt the cooperative plan instead of pursuing exclusively the present traditional mode of intermural instruction. In doing so, they would more efficiently and democratically serve the majority of their students."[2] In his supporting arguments, he cited the fact that most of the cooperative students had "employment that contributed educationally toward the aims of the curriculum."[3] Yet, while 60 per cent of students at Columbia worked, "scarcely half of this was commercial in nature or contributed educationally to the aims of the curriculum." Coleman also found that "Co-operative students progress to much better jobs." This despite the fact that "the fathers of the Columbia graduates were in occupations with approximately twice

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[1]C. H. Gray, "Recess for Work Experience: Bennington's Winter Period As An Educational Device," Occupations, XIV (October, 1935), 5-9.

[2]P. Evans Coleman, "Forms of Business Education," Journal of Higher Education, V (October, 1934), 367.

[3]This quotation and the others on this page are from the above study and are found on pages 367 to 372 of the above reference.

the opportunity and contacts to induct their sons successfully into business as those of the Cincinnati men."[1] Perhaps, his most powerful argument for the continuation of cooperative education was the fact that, "in times of depression the cooperatives held their positions better." While job opportunities for both groups dropped off considerably during the early thirties, "the proportional decrease experienced by the Columbia men was five times more than that of the Cincinnati men." This study emphasized what others had been saying about the cooperative assignments leading to permanent employment. This fact became more important as the job market became smaller.

The Depression, then, served to demonstrate that there were other reasons for utilizing the cooperative plan--not just to teach technical skills in a more realistic way. Cooperative education according to Ell, "is inherently fascinating in that it has to do with human beings at close range. It comes immediately to grips with the individual's problems of personal development and social adjustment."[2]

But cooperative education did not grow and flourish during the Depression withour problems. The difficulty of finding suitable placements for students has already been discussed. One problem which had not been encountered before was the relationship between unions and cooperative students. As unemployment grew, the unions, quite naturally, became concerned with the numbers of young, single college students that were employed on jobs that could be filled by a married man in need of work.

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[1] Ibid. These quotes are all from the reference cited.

[2] Carl S. Ell, "The Social Significance of the Cooperative Plan," School and Society, XLI (April 6, 1935), 449.

Cecil Kapp, who started the cooperative plan at Georgia Institute of Technology and later directed the Drexel cooperative plan for forty years, tells of the union problem.

> Before the depression, practically all our cooperating plants were operated open shop so there was, in general, no difficulty in the placement of students. In the few closed shops with which we operated, adjustments with the union were made by which cooperative students were classified as students and not as apprentices. . . .
>
> After the N. R. A. was put into effect, many strikes were called and we had to decide on our policy in regard to strikes. . .
>
> Cooperative students can learn a good deal of labor problems in strikes.[1]

Despite the fact that unemployment among married men was high, the unions were extremely tolerant of the cooperative student. Professor Johnson of the University of Detroit reported that during the C. I. O. strikes in that city in 1937, "only six co-operative students at the University of Detroit lost their jobs because of labor trouble."[2] This kind of cooperation with the unions was repeated over and over in virtually all of the major cities that had a "co-op" school. Once again, Kapp summarizes this cooperation best.

> The N. R. A. and the Wagner Bill have encouraged the formation of unions and this may mean somewhat more difficulty for us in placing students. This will probably mean that we shall need more cooperation form the unions than we have had before. The A. F. of L. is in favor of the cooperative plan of education, and we have been informed that, so long as the A. F. of L. is in control, we shall be able to have satisfactory relations with the union.[3]

In most cases, the cooperative schools took a neutral attitude toward the strikes and allowed the individual students to make their own

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[1]Cecil A. Kapp, "The Effect of Unions Upon the Placement of Cooperative Students," Journal of Engineering Education, XXVI (November, 1935), 263.

[2]William C. White, "Report of Conferences: Cooperative Engineering," Journal of Engineering Education, XXVIII (November, 1937), 175.

[3]Op. Cit., Kapp, p. 265.

decisions with regard to their participation. In no cases were students allowed to be used as strike breakers. This laissez-faire attitude toward the unions has continued to the present, and union problems have always remained negligible. Colleges have not forced their students to join unions against their will. However, if the position the student wants requires him to join a union, he must make the choice whether to join the union and take the job, or to seek a new position that does not require union membership. Once again, the advantage of having cooperative students placed in a variety of different industries is seen during periods of strikes. By using this technique, high unemployment of cooperative students can be avoided.

Another problem which occurred during the Depression was the relationship between the federal government, or for that matter the government at all levels, and the cooperative student employee. The National Recovery Administration (N. R. A.) cooperated by increasing the number of cooperative positions because of the necessity to reduce the number of hours for all industrial workers. In these instances, the rates of pay were also increased. However, the status of cooperative students as civil service employees was very confused. Students were not required to pass civil service examinations in order to work, but when they terminated their employment to return to school, their position could not be held for their return. Even after graduating, a cooperative students had to be "dropped from the payrolls" and could not continue with the agency with which he had "co-oped." G. T. Addison of the

University of Cincinnati emphasized:

> the great need at the present time is to secure the cooperation of the U. S. Civil Service Commission in order to open up cooperative positions for our students. It is essential in order to do this to obtain such an interpretation of the Civil Service Regulations as will enable properly qualified students to obtain employment from the federal service on the cooperative plan. To this end, Mr. Addison of Cincinnati offered a resolution which was passed by the Division of Cooperative Education of the American Society for Engineering Education to be laid before the President of the United States asking for such favorable interpretation of the law.[1]

This action signified the beginning of almost three decades of cooperation between the federal civil service and cooperative education. There have been many re-interpretations of the role of cooperative students with the federal government, and similarly, many regulations concerning the classification and mechanics of hiring cooperative students. The result has been the opening of cooperative positions in virtually every agency of the government, to the extent that the federal government has become the largest employer of cooperative students.[2] Perhaps Dean Schneider's dream of a national university to train government employees on a cooperative plan has been partially fulfilled by this cooperation with many universities.

World War II

As the fourth decade of the twentieth century began, the effects of the Depression were largely over and America was beginning to "tool up" for the impending war with Germany. Business was again in a period of

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[1] G. T. Addison, "Cooperative Problems Presented by New Political and Economic Conditions," Journal of Engineering Education, XXVI (November, 1935), 259.

[2] An example of how the federal government cooperated with cooperative education can be found by examining the Civil Service Student Trainee Program bulletins after World War II, and more recently, Civil Service Bulletin 330 which regulates the hiring of cooperative students under

high production as the United states not only supplied its Allies but began to stockpile war materials. Virtually everyone expected war, but the suddenness with which it came was unexpected. Production, while higher than it had been for over ten years, increased its tempo to levels the "Axis" powers had never dreamed possible. America went on a wartime economy, and while it included the inconveniences of rationing and "blackouts," it also contained the opportunities for the members of civilian labor to earn more money than many of that generation had ever seen. The changes in manpower requirements due to both military and industrial recruitment forced many changes in the traditional modus operandi of the colleges.

On many campuses, courses were condensed and the time for the degree shortened. Many campuses were virtually taken over by the military to train the officers and technicians needed to direct the war effort. Other colleges opened up their curriculum to include subjects not formerly taught, but now deemed necessary. Few campuses, if any, remained unchanged, but a return to the disasterous days of the SATC was not the solution being sought. American manpower experts were in a dilemma. How could increases in skilled technical help for the military be met without reducing the supply of technicians for industry below acceptable limits? In the competition for the skilled worker, government agencies and nondefense-related industries could not compete with the salaries that the defense industries were

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federal civil service. Two other references of help are: Department of the Air Force, Cooperative (Co-op) Programs, Program Supplement No. 29, (Washington, D. C.: Department of the Air Force, 1964), and Department of the Army, Cooperative Education Program, DA Pam 350-4 (Washington, D. C.: Government Printing Office, 1963).

able to offer. W. C. Marsh of San Francisco Junior College commented:

> As the pressure of government demand grew greater, even labor turnover in industrial companies accelerated. These organizations, however, with larger margins of profit were able to raise their salary scales. . . . For example, oil companies, war industries, and other manufacturing units raised wages for experienced employees substantially above those of the government.[1]

In the colleges, programs with immediate application of skills learned were the ones emphasized. Students were in short supply and there was no time to pursue long range goals.

Many of the colleges offering cooperative programs had to temporarily suspend these programs in order to accomodate the need for faster courses and a different clientele. Employers were too busy to take the time to train and cooperate in an alternating program, even if there were enough young people to maintain a cooperative program. Armsby shows that seven of the first 28 cooperative colleges suspended their cooperative programs during the Second World War.[2] Another seven discontinued cooperative education permanently. In the half that remained, the "co-op" program was used primarily to train the kinds of workers needed and to fill the manpower needs of the cooperating industries. The President of Rochester Athenaeum and Mechanics Institute, Mark Ellingson, saw the role of the cooperative schools as one of assisting in the training of skilled technologists for defense industries.

> The tremendous demand for man power on the part of productive industry has brought with it its corollary need for more technical training. The successful prosecution of the war demands not only a well-trained army but a well-trained industrial structure which is fundamentally a technological one. Industry and education must work together to train men who can become technologically competent to assume their share of the work

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[1]W. C. Marsh, "Learning While Earning in Wartime," Junior College Journal, XIII, (February. 1943), 278.

[2]Henry Armsby, "Survey of Cooperative Education," U. S. Office of Education Bulletin, 1949, No. 15 (1950), 7.

> of both defense and aggression. . . . where industry and education are working together toward the common goal of competance there is a solution to the problem.[1]

The variety of ways in which education can help in a time of national emergency are endless, and so it was with cooperative education as well. One of the ways devised in which a cooperative program could help was that operated in the business education departments of the Los Angeles City Public Schools. In order to alleviate the shortage of clerical personnel in local business, the high school ran a half-day alternating program "to provide wartime employment" for office boys, typists, etc. out of the business education department.[2] This program and others like it kept "co-op" alive during the war.

The Status of Cooperative Education at the End of World War II

Looking back to 1930 from the end of World War II, it is evident that neither the Depression nor the World War halted the growth of cooperative education. The severest tests yet posed had been surmounted. Nineteen new programs were begun during the Depression and four new ones during the duration of World War II. Of these, fifteen are still in operation today.[3] Of the twenty institutions of higher

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[1]Mark Ellingson, "Cooperative Education: An Answer for American Industry," Mechanical Engineering, LXIV, No. 9 (September, 1942), 659.

[2]Jesse Graham, "Quarter Century Mark in Cooperative Training," National Business Education Quarterly, XII (May, 1944), 62-64.

[3]Appendix I shows that the following schools started cooperative programs during this period and are still operating these programs in 1971: University of Minnesota and Bennington College (1932); Ohio College of Applied Science (1934); University of Florida and Illinois Institute of Technology (1936); Auburn University (1937); University of Alabama and Bradley University (1938); Northwestern and San Francisco Jr. College (1939); Mohawk Valley Community College (1940); Keuka College (1943); Fashion Institute of Technology (1944); Rensellaer Polytechnic Institute and the Agricultural and Technical College at Morrisville, N. Y. (1945).

education which had discontinued their cooperative programs during this period, ten of these had operated their cooperative program for less than ten years. Four of the twenty schools subsequently began cooperative education again after the War. In 1946, the number of colleges operating cooperative programs had shown only a slight increase from pre-depression levels, but the location,character and names of the institutions had changed considerably.[1] Some of the best known cooperative programs of today began during the Depression. Bennington College, the University of Florida, Auburn University, and Northwestern were just a few that deserve mention.

The period of the Depression also saw growth in the percentage of junior colleges that began cooperative programs. One-fourth of the new programs statred were in two-year institutions, and five of the six are still offering cooperative courses. Not only was there diversification in the kinds of institutions that had "co-op" programs, but the variety of course offerings on a cooperative basis was greatly increased. A great number of the courses at both the two- and four-year institutions were in the broad area of business administration. Cooperative programs were offered in accounting, management, insurance, merchandising, and industrial relations. Several programs which called themselves co-operative programs, but which devoted too little time to the work aspects to fit our definition, were begun at schools such as Lasell

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[1]See Appendix I.

Junior College in Newton, Massachusetts[1] or Stoneleigh College in Rye, New Hampshire[2] or Okumlgee Junior College in Oklahoma.[3] The University of Buffalo experimented with a selective cooperative program that was almost an "honors program" in the way in which the students were selected. In 1932, Drexel University inaugurated a cooperative program in home economics, which was adopted by some of the junior colleges, and San Jose Junior College began a cooperative course in police administration.[4] Cooperative education continued to grow in the engineering disciplines with the adoption of a program in textile engineering at Georgia Institute of Technology and with the beginning of programs at Illinois Institute of Technology, Northwestern University, and Rensellaer Polytechnic Institute.

The Depression brought sadness in many forms, but to those interested in cooperative education, the death of Dean Herman Schneider in 1939 was the saddest moment of all. For more than thirty years he had promoted his cooperative plan with untiring effort. At the time of his

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[1]Edith Hadcock and Guy Winslow, "Merchandising Course at Lasell," Junior College Journal, IX (May, 1939), 468-470.

[2]C. E. Chapman and E. D. West, "Experience Beyond the Classroom," National Business Education Quarterly, VIII (October, 1939), 25-26.

[3]F. L. Tibbits, "Philosophy of Okmulgee Junior College," Junior College Journal, IV (October, 1934), 16-22.

[4]"Police Administration," Junior College Journal, II (February, 1932), 284.

[5]C. A. Jones, "The Cooperative Student in Textile Engineering," Engineering Education, XLIII (1935), 261-262.

death, Schneider was the consultant working to establish the cooperative program at Northwestern. Walter P. Murphy, president of the foundation which made the gift to Northwestern enabling them to establish an Institute of Technology, said:

> I have long been interested in the problem of thorough training of engineers and business executives and have given considerable study and thought to this subject. Aided by contacts with Dean Schneider, the pioneer of the cooperative system, Dr. Charles F. Kettering, the distinguished research engineer and scientist, and others, I reached the conclusion that the cooperative system offered the very best solution to this problem.[1]

No more fitting tribute to Dean Schneider could be made than the knowledge that his "cooperative idea" had indeed become established in American higher education and had succeded in surviving the test of the Great Depression.

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[1] "The Cooperative System of Engineering Education," School and Society, XLIX (April 1, 1939), 424.

CHAPTER VII

THE ORGANIZATION OF COOPERATIVE EDUCATION

> . . . Cooperative Education is a different form of higher education. It requires a daring, a break with stuffy traditionalism, and it provides an exciting voyage for those with the courage to break with the tried.
>
> --H. Russell Bintzer

As the Second World War approached its conclusion, American colleges began to plan for the future expansion and the effects that conversion to a post-war economy would have on them. In July of 1946, just prior to the end of the War, President Truman appointed a Commission on Higher Education to "reexamine our system of higher education in terms of its objectives, methods, and facilities; and in light of the social role it has to play."[1] Among the charges to this Commission were: "Ways and means of expanding educational opportunities for all able young people; . . . [and] the desireability of establishing a series of intermediate technical institutes."[2] George F. Zook, the former president of the University of Akron and former U. S. Commissioner of Education, was appointed chairman. Of the thirty members of the Commission, six were from schools that had cooperative programs.[3] One of the major problem areas with which the Commission would concern itself was, "Ways and Means of Providing Higher Educa-

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[1]George F. Zook, "President's Commission on Higher Education," Higher Education, III, No. 1 (September 2, 1946), 1.

[2]Ibid. [3]Ibid.

tional Opportunities to All in Terms of the Needs of the Induvidual and of the Nation."[1]

The cooperative schools were no less concerned. During the War, many of the "co-op" programs had to be discontinued either because they devoted their entire facility to training programs for the military or because they had operated accelerated programs.[2] Smith surveyed twenty-nine colleges and three technical institutes, in 1946, to determine which ones had discontinued their "co-op" programs during the War, and which ones planned to continue or resume after the War. Of the population surveyed, all but one indicated that they planned to continue their cooperative program after the War. Four additional schools reported that they would begin cooperative programs for the first time.[3]

Why did cooperative education seem to offer promise for the future for these schools? There was no one simple answer but rather a combination of advantages that led to the adoption of the cooperative method by some thirty-one additional colleges in the decade immediately after World War II. (See Appendix I and II). The Cooperative engineering colleges pointed to the fact that cooperative education allowed the prospective engineer to obtain the kind of "field" experiences necessary for the understanding of the engineering profession.

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[1] Ibid., 9. 2.

[2] Leo F. Smith, "Effect of the War on Cooperative Education," Higher Education, II, No. 14 (March 15, 1946), 1.

[3] Ibid., p. 3.

Hammond, in a study of the changes in engineering education after the War noted:

> We have referred previously to the values derived by students from the experience and maturing influence of employment in industry. Engineering colleges might well establish systematic means of aiding students to secure employment that will afford the right sort of experience and of requiring such experience as a prerequisite to graduation.[1]

In the footnote to this remark, Hammond tells us that "Certain colleges achieve this result through the cooperative plan."[2] Ovid Eshbach of Northwestern University told the Junior College Group of the Central Association of Science and Mathematics Teachers that "When properly done, there is no better or more effective method of education, particularly for professional vocations."[3]

However, this was not the only advantage that the "co-op" plan offered. Dean Gowdy of the University of Cincinnati cited the inherent possibilities for vocational guidance as one of "co-op's" chief advantages.[4] He and others that agreed were simply restating the view of Schneider proposed some twenty years earlier.[5] Cooperative education gives the student the opportunity to work in his field of interest before making too much commitment in time and money. In this way, he can test his likes and dislikes, his abilities and interests, against the realities of

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[1]H. P. Hammond, "Report of the Committee on Engineering Education after the War," Journal of Engineering Education, XXXIV (May, 1944), 613.

[2]Ibid., footnote on p. 613.

[3]Ovid Eshbach, "The Place of Cooperative Education in a Peacetime Program," School Science and Math, XLVI (April, 1946), 299.

[4]R. C. Gowdy, "Selection and Guidance Aspects of Cooperative Education," Journal of Engineering Education, XXXV (November, 1944), 187-191.

[5]Schneider, The Problem of Vocational Guidance.

the profession he has chosen. If a student finds his chosen field to be considerably different than he had imagined, there is still sufficient times for him, and his coordinator to analyze the situation and determine the best path for that student to follow. This is precisely the type of counseling Schneider envisioned in his articles on "preventing misfits."[1]

Interest in the cooperative method led the Society for the Promotion of Engineering Education, and more specifically its Cooperative Education Division, to form a Committee on the Aims and Ideals of Cooperative Education for the purpose of examining this method of engineering education "in order to officially formulate and publish their doctrine or creed."[2] The final report of this committee is a milestone in the history of cooperative education. The specific aims of cooperative education were described as those designed:

1. To impart first hand and actual knowledge of and experience with the execution in industry of engineering designs, projects and developments.
2. To impart understanding of and familiarity with the problems and the viewpoints of workingmen and women.
3. To assist students, by direct and personal experience in industry, to test their aptitude for engineering careers.
4. To enable engineering students to adjust themselves to engineering employments by gradual and easy transition from academic pursuits and mode of life to the requirements and conditions of industry.
5. To train and otherwise prepare students especially and directly for the administrative and operating functions which, to a greater or less degree, enter into most engineering careers.[3]

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[1] Crowell, "Preventing Men from Becoming Misfits."

[2] Freund et al, "The Cooperative System--A Manifesto," p. 117.

[3] Ibid., p. 119.

The report continues in the next paragraph to say "Individual institutions quite properly may and do seek additional purposes which are appropriate to their type of student, neighboring industries, or other peculiar requirements or circumstances."[1]

This report, entitled "The Cooperative System--A Manifesto," was officially adopted by the cooperative institutions, which were members of the society, as the official statement of policy for these institutions with regard to their cooperative programs.

The Early Organizations

Until 1963, the organization which did the most to encourage and promote the cooperative idea was the Society for the Promotion of Engineering Education--which became the American Society for Engineering Education in 1946. As previously memtioned, this society was the outgrowth of Section E of the International Congress on Engineering which met at the Chicago World's Fair in 1893.[2] Ira O. Baker was made chairman and C. Frank Allen of the Massachusetts Institute of Technology was appointed secretary. At the final session, "those who had come together . . . felt that the subject of Engineering Education should be discussed further and that an organization should be effected for that purpose."[3] Allen describes the formation of a committee to write a constitution for this society and the fact that it was they who devised the name under which

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[1] Ibid., p. 120.

[2] See Chapter IV.

[3] C. Frank Allen, "Historical Sketches of the Society," Proceedings of the Society for the Promotion of Engineering Education, XXXIX (1931), 80.

this organization operated for the next fifty-three years.[1] It is interesting to note that one of the members of that committee was Mansfield Merriman, who would later become adviser to Herman Schneider.

When Schneider began his cooperative program, it was the Society for the Promotion of Engineering Education which gave him the opportunity to discuss its success in the early stages of its development.[2] However, no organization devoted specifically to cooperative education existed prior to the formation of the Association of Cooperative Colleges in 1926. Under the leadership of Dean Schneider, who was elected its first president, this association brought together educators, coordinators, and representatives of the industries that employed "co-op" students. K. G. Matheson, President of Drexel Institute (now Drexel University) was the vice-president, and C. W. Lyttle, at that time a coordinator at New York University, was elected secretary-treasurer.[3] The immediate success of the Association of Cooperative Colleges was evidenced by the fact that their second Annual Convention in 1927 attracted fifty-five members even though there were only sixteen colleges represented in the group of cooperative colleges.[4] In April, 1930, six members of the Association of Cooperative Colleges who were also members of the

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[1] In the discussion of the society's formation, Allen claims that one member "arose and inquired if the committee had not exceeded its authority." Allen said that it had, but "if a Society was to be organized, it was necessary to act at once."

[2] Schneider, "Two Years of the Cooperative Course," and "Notes on the Cooperative System."

[3] Association of Cooperative Colleges, Proceedings of the Annual Meetings, 1927-1929, (New York: The Association of Cooperative Colleges, 1929).

[4] Association of Cooperative Colleges, "Second Annual Convention, Drexel Institute, June 23-24," Mechanical Engineering, XLIX(August, 1927), 933-934.

Society for the Promotion of Engineering Education, petitioned the Society to form a Division of Cooperative Engineering Education.[1] In December of that year, it was reported that such a division had been formed and that one page of the Journal would be "devoted to news and short articles of interest concerning Cooperative Engineering Education."[2]

In 1946, the Society for the Promotion of Engineering Education changed its name to the American Society for Engineering Education and its Cooperative Engineering Education Division has continued to provide the kind of leadership that it had provided for over fifty years. After the fiftieth anniversary of cooperative education at Cincinnati in 1956, H. Russell Bintzer of Washington University in St. Louis called attention to the fact that the Cooperative Engineering Education Division represented only cooperative engineering programs and that there were many non-engineering programs that were not included.

> I would hope that as a result of this, a new and inclusive Association of Cooperative Colleges would emerge. It would be an Association embracing and recognizing schools--not just those offering engineering--that would agree to abide by the principles adopted as a result of this study.
>
> Such an Association could render immeasurable service to the whole field of those schools already committed to this form of higher education, while its force for good in assisting those contemplating the establishment of such programs is incalculable.[3]

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[1]The six members signing the petition were: K. G. Matheson, president of Drexel University; F. E. Ayer, dean at the University of Akron; D. C. Jackson, Jr. chairman of the Electrical Engineering Department at the Massachusetts Institute of Technology; J. E. McDaniel, Georgia Institute of Technology; C. W. Lyttle, New York University; and E. W. Whited of the University of Pittsburgh.

[2]W. H. Timbie, "The Division of Cooperative Engineering Education," Journal of Engineering Education, XXI (December, 1930), 364.

[3]H. Russell Bintzer, "A Critique of Cooperative Education," Journal of Engineering Education, XLVII (November, 1956), 232.

Bintzer's dream of a new, all-inclusive association would have to wait eight years for its inception, but his plea did not fall on deaf ears. When the Cooperative Education Association was formed in 1964, Bintzer was remembered as the one who first proposed such an idea.[1]

Growth of "Co-op" in the Fifties and Early Sixties

Two events occurred during this period that typify the growth that cooperative education experienced during the two decades following World War II. The first was the celebration of fifty years of cooperative education by the two colleges that pioneered in this form of higher education. In 1956, the University of Cincinnati began its second half-century with a "week-long industrial exhibit of displays by co-operative employers, the 'Panorama of Industrial and Scientific Progress, 1906-1956.'"[2] The theme "Education and Industry at Work for Progress" was chosen for this celebration and the Cooperative Education Division of the American Society for Engineering Education adopted a resolution urging "all participating firms and all colleges in our Division to be represented at the observance" on April 19-25th.[3] Three years later, Northeastern University celebrated its golden anniversary of cooperative education and these two milestones in the history of cooperative education served to demonstrate that Schneider's idea had indeed survived its toughest tests--the Great Depression and two world wars.

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[1]Stuart B. Collins, "And It Happened This Way," Journal of Cooperative Education, I (November, 1964), 3.

[2]"50th Anniversary of Cooperative Education," Journal of Engineering Education, XLVI (February, 1956), 617.

[3]"Cooperative Education Resolution," Journal of Engineering Education, XLVI (February, 1956), 617.

This period in the development of cooperative education might well be remembered as the period when the state colleges and universities discovered the "co-op" plan. Of the fifty-one higher educational institutions that adopted "co-op" between the end of World War II and 1963, nearly half were state institutions. (See Appendix I). The emphasis at these schools was not the financial reward of the cooperative plan, which had become important in some of the private colleges, but the value of the work experience itself.[1] At a time when business was feeling the cyclical variations that accompany post-war cut-backs, followed by a return to a modified wartime economy when the Korean War began, and then back to "peace time" at its conclusion, a most important factor in job recruitment was work experience. The graduate without some sort of previous experience was not as competitive on the job market. Industry wanted technicians with experience, and teachers that could bring the realities of industrial procedures into the classroom were in much demand.[2] Some of the state universities, notably the University of Illinois and the University of Michigan, began cooperative programs to train teachers of vocational education and industrial arts.[3] In 1955, Lux referred to three such programs operating in the state of Michigan.[4]

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[1]A popular cliche used to describe cooperative programs during this period was, "Earn While You Learn," or variations of this expression.

[2]R. L. Hitch, "Work Experience in Business for Prospective Business Teachers," National Business Education Quarterly, XXIII (March, 1955), 33-36.

[3]R. C. Wenrich, "Industry and Education Cooperate in the Preparation of Teachers," Journal of Teacher Education, III (December, 1952), 285-287.

[4]D. G. Lux, "New Approach to Industrial Vocational Teacher Education," Journal of Teacher Education, VIII (September, 1956), 259.

"One little-investigated possibility for providing comprehensively trained trade teachers is the cooperative plan employed so successfully by the closely allied field of engineering education."[1]

However, work-experience programs were not only fashionable in the state universities or in the engineering schools. Even respected institutions such as the "Ivies" began to consider the advantages of work and study programs. Princeton introduced such a program in 1946, "designed to make summer employment part of the educational experience of the undergraduate, by coordinating it with his curricular and vocational interests."[2]

New programs utilizing the cooperative method were developed at a number of established institutions. The City College of New York began programs in such business field as retail training, advertising, credit, foreign trade, marketing, sales, and statistics in January, 1947.[3] One of the early "co-op" schools, the University of Louisville, inaugurated a program "to provide undergraduates with practical experience in municipal administration."[4] Northeastern University and Central Michigan University followed the lead of Cleveland State University and began programs in teacher education on a cooperative basis during the fifties.[5,6]

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[1] Ibid., p. 258.

[2] "Study-Work Plan at Princeton," Higher Education, II (May, 1946), 15.

[3] "College of the City of New York, School of Business Experience with Work-Study Programs," School and Society, LXX (October 8, 1949), 235.

[4] R. G. Hemdahl, "City Hall-Campus Cooperation: Louisville Internship," American City, LXIV (November, 1949), 106-107.

[5] "Dean Vander Werf Describes N. U. Intern Program," N U Viewpoints, I, No. 2 (June, 1963), 1.

[6] C. E. Nash, et. al., "They Led Two Lives," NEA Journal, (May, 1965), 12-14.

It should not be surprising, therefore, that students and educators began to discuss the possibilities of utilizing cooperative education at the graduate level. The Committee on Graduate Study of the Society for the Promotion of Engineering Education cited the possibilities of cooperative education in graduate schools and mentioned several part-time cooperative programs already in existence in 1945.[1] Industry favored the establishment of cooperative graduate programs bacause, "This program offers an alternative to the 'on-the-job' and 'off-the-job' programs. . . . [and] provides a more gradual tranisition from concentration on education to concentration on productive work."[2] The graduate schools, themselves, could utilize the cooperative plan to assist in the selection of prospective students, to keep the faculty up to date on the latest developments in the field, and to assist in providing suitable problems for graduate dissertations.[3] With these advantages in mind, the University of Tennessee at Knoxville surveyed the local industries and the Tennessee Valley Authority with regard to their possible interest in such a program, and announced that they would begin in 1952.[4] In addition, the Tennessee

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[1]Committee on Graduate Study, "A Manual of Graduate Study in Engineering," Journal of Engineering Education, XXXV (June, 1945), 742.

[2]T. M. Linville and K. B. McEachron, "Cooperative Engineering Education at the Graduate Level from the Viewpoint of the Industries," Journal of Engineering Education, XL (May, 1950), 475-479.

[3]R. E. Kirk, "Cooperative Engineering Education at the Graduate Level from the Viewpoint of the Graduate School," Engineering Education, LVII (1950), 353-359.

[4]N. W. Dougherty, "Cooperative Graduate Study," Journal of Engineering Education, XLII (December, 1951), 202.

faculty felt that, "more than one institution should try a pilot program in this field, and undertake to discover the difficulties which may be reported back to the colleges at a subsequent meeting."[1] In the Northeast, fifty years after the founding of cooperative education by Schneider, Northeastern University began its graduate cooperative program in engineering because the institution felt that "it fills an important place in higher education. It has most of the advantages of both full-time and part-time graduate study and few of the disadvantages of either."[2]

At the other end of the higher education scale, work-experience education in general, and cooperative education specifically, had become very popular in the junior colleges and two-year technical institutes.[3] Until this time, only a few two-year schools had really developed extensive "co-op" offerings, notably Rochester Athenaeum and Mechanics Institute and General Motors Institute--both of which became four-year, degree-granting, institutions during this period, and the Ohio Mechanics Institute, which became the Ohio College of Applied Science--a two-year school affiliated with the University of Cincinnati--in 1962.[4] In New Haven, the Young

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[1] Ibid., p. 202. This particular paper was presented at a meeting of the Southeastern Section of the American Society for Engineering Education in Biloxi, Mississippi on March 24, 1951.

[2] Alvah K. Borman, "Graduate Study: A New Approach Through Co-operative Education," Northeastern University, Boston, 1966, p. 25. (Mimeographed.)

[3] W. J. Crane, "Work Experience Programs in Junior College," Junior College Journal, XXII (April, 1952), 460-465.

[4] For a good history of the program at General Motors Institute see, A. Sobey, "Close-Coupled Cooperative Engineering Education," Journal of Engineering Education, XXXVII (March, 1947), 498-512. The program at Ohio Mechanics Institute is described in, H. p. Rodes, "Cooperative Technical Education, Pros and Cons," Junior College Journal, XXIV (February, 1954), 362-366.

Men's Christian Association started a two-year college called the New Haven YMCA Junior College using Yale's facilities in the evening. In this program, the students worked during the day on jobs coordinated by the school and attended classes during the evening. This program was particularly geared to the returning veterans who needed training in specific skills.[1] Hillyer Junior College in Hartford, and Gila Junior College in Arizona stand out as examples of schools that at one time operated successful cooperative programs, but have since ceased to exist.[2] However, ten junior college programs were started during this period which are still operating today.[3] These programs offer a variety of interests ranging from agronomy and animal husbandry at the State University of New York at Alfred to office occupations at Fresno City College and hotel and restaurant management at Northwood Institute. In 1945, Earle Wallace, the founding president of Dean Junior College in Massachusetts, drove across the United States and visited some 100 junior colleges from coast to coast. Ten years later, he made the same journey to see what changes had taken place during the period. His study described two main points about which the most evident trends resolved themselves. One was the fact that "in the majority of cases the junior colleges visited are no longer

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[1]J. Watson Wilson, "Preparing to Live; Living; Making a Living," Junior College Journal, XV (January, 1945), 197-202. This school is now a four-year college called New Haven College.

[2]For information on these two programs see entries in the bibliography under A. S. Wilson and Dick Mount, respectively.

[3]The schools referred to are: Fresno City College, Central Connecticut State College, Delta College, Henry Ford Community College, SUNY at Alfred- Agricultural and Technical College, Broome Technical Institute, Bronx Community College, New York City Community College, Sinclair Community College, and Northwood Institute of Midland.

junior colleges, but have changed to community colleges."[1] The second, and more important to this study, is the fact that " 'Work Experience' is an integral part of education, invaluable in preparing the learner for his future job, whether on a farm, in trades, or in other fields."[2] This trend toward work-experience education in the junior colleges became even more pronounced in the sixties and early seventies, and will be discussed in greater detail in the next chapter.

As cooperative education spread to more and more colleges in the United States, it is not surprising that interest in this form of higher education was generated in other countries as well. Our nearest neighbor, Canada, was one of the first countries to copy the kind of cooperative plan existing in this country. Ira Needles, Chairman of the Board of Governors of the newly established University of Waterloo describes how "co-op" came to Canada, in 1957.

> Our universities were experiencing up to 40% failure rate in the first two years of the engineering courses. This high failure rate led us to start asking questions of both undergraduate and graduate engineers. The answer to our questions convinced us that many students selected engineering courses because of a desire to do technical work. . . . The truth of the matter was that Johnny visualized himself as a technician rather than as an engineer. When he entered college he was frustrated by the heavy loads of math and science. He failed to realize the importance of these subjects to the work that he wanted to do.
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> It was during this time . . . that our attention was drawn to the co-operative courses being offered in the United States.[3]

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[1]Earle S. Wallace, "Trends in Junior Colleges During the Past Decade," Junior College Journal, XXVI (January, 1956), 276.

[2]Ibid.

[3]Ira G. Needles, "Cooperative Education in Canada," Journal of Engineering Education, XLIX (June, 1959), 962.

In this regard, faculty members from the University of Waterloo visited nine "co-op" schools and in a period of one year obtained a commitment for cooperative work assignments from 140 Canadian companies.[1] After two years of operation, officials at Waterloo found that the "co-op" program did attract qualified students, many of whom "would not otherwise continue their formal education."[2] They also found that Canadian industry continued the cooperative relationships even in time of recession and despite problems with unions over the acceptance of the "co-op" concept. Cooperative education has continued to grow at the University of Waterloo and in other institutions in Canada.[3] In 1970, there were a total of six Canadian institutions of higher education offering cooperative programs. (See Appendix I).

Across the Atlantic, a re-birth of the English "Sandwich" courses was begun. Patrick informs us that there were many kinds of "cooperative" arrangements between industries and schools, but that the "Sandwich Plan" seemed to hold the most promise for the future.[4] Tucker furnished further historical information below:

> Winston Churchill in 1954-55 was startled by the technical lead exhibited by the Russians and responded somewhat as did we in 1957 . . .
>
> Ten Colleges of Advance Technology (originally technical colleges--somewhat analogous to our certificate programs) were designated in 1955 to reach university standards and as a distinguishing feature to adopt cooperative programs in engineering, business, applied science, social science, modern languages, etc. The final chartering of these colleges in 1965 as Technological Universities by the Queen was the reward for a decade of co-operative education well-done in a

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[1] Ibid. [2] Ibid., p. 965.

[3] A. S. Barber, "The Story of Cooperative Education in Canada," Journal of Cooperative Education, V (November, 1968), 1-7.

[4] T. L. Patrick, "Our Population Problem, Now and Then," Educational Forum, XXII (March, 1958), 293-296.

> country where the traditional universities had all of the status and little of the desire to see knowledge applied.[1]

There are a variety of "sandwich plans" in use ("thin sandwich," "thick sandwich" and "inside-out sandwich") but it is not consistent with the goals of this study to describe them in detail here.

It would be misleading to imply, by ommission, that interest in cooperative education was confined to this side of the "iron" and "bamboo" curtains. In Russia as early as 1922, interest in "co-op" was evidenced by a visit of several Russian educators to the University of Cincinnati to discuss the cooperative plan with Dean Schneider. Walters tells us that in a 150 page report on education in Russia in 1930, there was only one photograph, that of Herman Schneider. In 1959, Nikita Khrushchev "resurrected" the cooperative idea and envisioned a more practical education in Russian secondary and higher schools.[3] Speaking before his thirteenth Komosomol Congress in 1958, he said, "The work of universities, medical, pedagogic, and other higher educational establishments, should also be more closely connected with life, with practical work."[4] It was about this time that a group of Soviet educators visited Northeastern University and soon after a work-study program was inaugurated in the Soviet Union.[5]

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[1]W. Henry Tucker, "British Sandwich Courses," p. 39.

[2]Raymond Walters, "Is Soviet Education Borrowing from the United States?" School and Society, LXXXVII (May 9, 1959), 217-218.

[3]N. S. Krushchev, "Educating Active and Conscious Builders of a Communist Society," translated by I. Schlesinger, School and Society, LXXXVII (February 14, 1959), 67.

[4]N. S. Krushchev, "School and Life," translated by I. D. London, School and Society, LXXXVII (February 14, 1959), 72-74.

[5]Elizabeth Moos, The New Work-Study Programs in Soviet Education, (New York: National Council of American-Soviet Friendship, 1965).

While information regarding the life-styles and education inside Red China is considerably less available than that inside Russia, there is evidence to suggest that they too, are experimenting with a form of cooperative education.[1] Since this study concerns itself only with the historical development of cooperative education in American colleges, no attempt was made to ascertain the extent of cooperative eudcation in other countries. The instances cited here are offered only as an indication that this method has expanded outside the United States as well as within it.

The Edison Study and the Founding of the National Commission for Cooperative Education

As significant as the growth was in the fifteen years immediately following the Second World War--fifty-one colleges adopting the cooperative program--it was insignificant when compared with the growth in cooperative education in the eight years, or even the three years, preceeding 1971. The impetus for this unimaginable expansion of "co-op" had its origin in the period under consideration. The simple announcement below could not have foretold the importance of that event:

> A conference on "Cooperative Education and the Impending Educational Crisis" will be held in Dayton, Ohio, on May 23 and 24, by the Thomas Alva Edison Foundation. The objective of the conference is to highlight the educational values of a cooperative form of education.[2]

With this conference, cooperative education took on a whole new dimension--a missionary spirit. Participants in this conference included

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[1]Ting-i Lu, Education Must Be Combined with Productive Labor, (Peking: Foreign Languages Press, 1958).

[2]"Edison Foundation Conference on Cooperative Education," Journal of Engineering Education, XLVII (March, 1957), 764.

such dignitaries as Clarence Faust, President for the Fund for the Advancement of Education; Ralph Tyler, Director of the Center for Advanced Study in the Behavioral Sciences; and Samuel Gould, President of Antioch College. Of all the recommendations suggested at this conference, one in particular came forth most clearly--that cooperative education should be developed in other fields in addition to engineering.

> . . . Cooperative education is a way of drawing upon human resources for education at a time when present resources are in short supply. It is a way of establishing a new and fruitful relationship between business and governmental institutions in our society and educational institutions.
>
> I do not mean to leave the impression that the advantages of cooperative education seen in this light are purely economic or mechanical; . . . Not all subjects surely can best be handled by a combination of work and study, but a combination of work and study may not only be feasible but educationally desirable in other areas than the one which has chiefly been developed--engineering. One of these I am convinced is teaching itself . . . . . .
>
> If cooperative education is to be effective, then work must supplement study and study must supplement work. They cannot, I think, be separate layers in the educational experience of students.[1]

Ralph Tyler described how cooperative education can be used to assist the learning process. "The role of cooperative education as a means of giving greater motivation, seeing the connection between the job and what the student is learning in school, represents an important value of cooperative education."[2] Later in the same paper, Tyler said, "though

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[1]Clarence H. Faust, "The Development of Our Resources for Higher Education, Highlights of the Conference on Cooperative Education and the Impending Educational Crisis (Dayton: The Thomas Alva Edison Foundation, 1957), p. 27.

[2]Ralph W. Tyler, "Educational Values of Cooperative Education," Highlights of the Conference on Cooperative Education and the Impending Educational Crisis, p. 36.

cooperative education is not an educational panacea, it is a very substantial means of extending and improving higher education in America."[1] From this point forward, cooperative education would not develop haphazardly, but with direction and purpose.

An outgrowth of this conference was the initiation of a two-year national study of cooperative education supported by a grant of $95,250 from the Fund for the Advancement of Education.[2] Chairman of the study committee was Ralph Tyler and the Executive Director was James W. Wilson, Dean of the College of General Studies at the Rochester Institute of Technology. The results of this study were described in detail in Work-Study College Programs: Appraisal and Report of the Study of Cooperative Education published in 1961 and discussed in the Edison Foundation conferences in 1960 and 1961.[3] Again, the recommendations were to (1) expand "co-op" to other fields of endeavor, (2) extend cooperative education to post-graduate education, and (3) develop new programs to use cooperative education in the education of women. "The primary recommendation of the Study Committee of the Study of Cooperative Education is that American education make wider use of the principle of cooperative education."[4]

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[1] Ibid., p. 38.

[2] Ralph W. Tyler and Annice L. Mills, Report on Cooperative Education: Summary of the National Study (New York: The Edison Foundation, 1961), p. 2.

[3] Wilson and Lyons, Work-Study Programs.

[4] Tyler and Mills, "Report on Cooperative Education," p. 29.

Charles Kettering's support of the Edison Foundation conference in 1957, and his continuing support along with that of the Fund for the Advancement of Education and the support of the Edison Foundation itself, led ultimately to the establishment of the National Commission for Cooperative Education in October, 1962.

> The goals of the National Commission for the next 10 years are to double the number of colleges and universities offering cooperative education programs . . . : to increase the number of students enrolled in cooperative education programs to 75,000; and to strengthen some of the existing colleges . . . by helping them to adopt the economic and educational benefits of cooperative education.[1]

The next chapter will show that these goals were indeed realized, and in fact, exceeded by the time of this study.

The Cooperative Education Association

Bintzer's dream was almost a reality. His desire for an "exhaustive analysis of exactly what is needed to operate a program of Cooperative Education" and his need for some "specific recommendations regarding what Cooperative Education is and what it is not, and what claims may validly be made for it," had been accomplished.[2] "This brings us to Association, the most important of the three steps I envision. Without agreement on this step, the whole of my proposal would be for naught."[3] With the backing and encouragement of the Cooperative Engineering Education Division of the American Society for Engineering Education, a conference

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[1]"Expansion of Cooperative Education: Work-Study Plan," School and Society, XCI (February 23, 1963), 102.

[2]Bintzer, "A Critique of Cooperative Education," p. 232.

[3]Ibid.

was held in conjunction with the aforementioned organization for the purpose of starting a new association that would encompass not only engineering educators and engineering related industries, but all those interested in cooperative education. On September 18, 1963, the Cooperative Education Association was founded. Those represented as founders were: S. B. Collins of Drexel University, Nancy Concannon of the John Hancock Company, J. D. Dawson of Antioch College, D. C. Hunt of the University of Detroit, Frank Jakes of the Ford Motor Company, G. H. Miller of the University of South Florida, Mike Vaccaro of the National Aeronautics and Space Administration, L. Knickerbocker of the Detroit Edison Company, and R. L. Wooldridge of Northeastern University.[1] This endeavor signified the beginning of the greatest era of cooperative education--an era which has not yet reached its climax.

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[1]S. B. Collins, "And It Happened This Way," Journal of Cooperative Education, I (November, 1964), 3-4.

CHAPTER VIII

DIVERSIFICATION AND UNPRECEDENTED GROWTH

> Education and industry are finally recognizing that this system can, in fact, provide our society with one of its finest educational tools.
>
> --D. W. Burris
> American Association
> of Junior Colleges

The expansion of cooperative education in the past decade has been nothing short of phenomenal. The goals of the National Commission for Cooperative Education were not only achieved, but exceeded in 1971.[1] However, it was not just the expansion of cooperative education to new colleges that was significant, but the expansion of cooperative education in some of the older existing programs as well. Table 1 shows that in nearly half of the original cooperative institutions, their enrollments in the cooperative courses remained the same, or increased, during the sixties. The interesting point is that while cooperative education was spreading to some one-hundred and eleven colleges that had not previously had "co-op," many of the existing ones were not sitting idly by, but were also actively involved in revitalizing and diversifying their own cooperative offerings.[2] These two factors combined to explain the rapid growth of cooperative education. Neither one could have had such impact alone.

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[1]George E. Prolst, "Promotion and Exchange of Information," Handbook of Cooperative Education, Asa S. Knowles, ed. (San Francisco: Jossey-Bass, 1971), p. 318.

[2]This can be demonstrated by comparing the major fields in which cooperative programs were offered in 1963 with those listed in the Appendix C of the above reference.

TABLE 1

COMPARATIVE ENROLLMENTS DURING THE SIXTIES

School	Program started	Cooperative enrollment	
		1961-62	1968-69
University of Cincinnati	1906	3,238	3,061
Northeastern University	1909	4,400	9,380
University of Pittsburg	1910	discontinued	
University of Detroit	1911	1,512	785
Georgia Institute of Technology	1912	1,213	1,200
Rochester Institute of Technology	1912	1,373	834
University of Akron	1914	163	465
Massachusetts Institute of Technology	1917	121	87[a]
Drexel University	1919	3,349	3,555
Evansville College	1919	84	69[b]
Marquette University	1919	145	256
Antioch	1921	1,550	750
Cleveland State University[c]	1923	850	1,427
General Motors Institute	1924	2,406	2,091

[a]This program is a "selective" program leading to the Master's degree.

[b]Evansville discontinued their program in 1930 and did not begin it again until 1946.

[c]Formerly Fenn College.

There are, undoubtedly, many reasons why cooperative education became the vehicle of innovation and expansion for so many colleges, universities, and junior colleges. Among them are: the need for greater relevance in higher education, the demand for a type of education that "breaks" with the traditional pattern, the need for a more practical orientation to higher education, and the desirability of introducing some kind of an "interlude" into the regular program of college studies. Whatever the reason, though, cooperative education has provided an answer, not simply because it was convenient, but because it was tested. "It is important to emphasize that cooperative education is both an innovation in traditional higher education

and an innovation with sixty-five years of history and development."[1]

Another reason why cooperative education became so popular during this period is that it provided a kind of higher education that appealed to middle-class families, whose values included that of the importance of work, and to many from America's ghettos and "melting pots" who could not hope to achieve a higher education in the more traditional setting. Wayne Morse, the outspoken Senator from Oregon during the sixties, in his opening statement at a hearing on Senate Resolution 1126 of the Eighty-ninth Congress made this statement.

> We need innovations to adjust educational structure to the needs of a new time. We can no longer be satisfied to educate the top group and flunk the rest. Any corporation that threw away half its raw material every year would be bankrupt. Any educational system that does not adequately provide for all of our young people--including the lesser half in talent and brains--will fail us as well as them. The poor, the embittered, the alienated, will cost our society more than it would cost to educate effectively those people now.[2]

This chapter deals with the expansion of cooperative education from this perspective.

"Co-op" and Minority Group Education

The utilization of the cooperative plan by minority or disadvantaged groups is not new. In some respects cooperative education was founded for them. Certainly Schneider recognized this fact in 1906 when he made his "rounds" trying to sell his faculty on the idea of educating "boiler-makers." Of the 221 colleges listed in Appendix I, 186 of them or 84 per cent are located in metropolitan areas. Many cooperative colleges have

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[1]Probst, "Promotion and Exchange of Information," p. 318.

[2]Wayne Morse, "Cooperative Education Meets the Need," Journal of Cooperative Education, IV, No. 1 (November, 1967), 10.

become the institution of higher education for the majority of inner-city residents. While the advantages of cooperative education are important to students from all kinds of backgrounds, the benefits to disadvantaged youth are even more pronounced. In 1971, Lena McKinney of Morgan State College surveyed the nation's principal black colleges. "Twenty-five, or 55 per cent, of the forty-five colleges responding to the questionnaire reported that they had a cooperative education program. The remaining twenty reported that serious consideration had been given to establishing one."[1] In an address before the American Psychological Association in September, 1971, Asa S. Knowles, President of Northeastern University cited motivation, introduction to work experience, exposure to new forms of employment, breaking down the separatist philosophy, and the financial advantages of employment as the chief reasons why cooperative education has appeal for disadvantaged youth.[2] As long as the cooperative colleges continue, their role in the education of the disadvantaged of all races will grow. Their location, their type of program and their history combine to make "co-op" schools ideal for this purpose.

But when did the disadvantaged first realize that cooperative education was right for them? When did the "black colleges" begin to experiment with "co-op"? In one way, many have always had some form of work-oriented education. As pointed out in an earlier chapter, work has been a part of the education of most of the children of the working classes. When Booker T. Washington founded Tuskeegee Institute in 1881, he did so with

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[1]Lena M. McKinney, "Minority Students," Handbook of Cooperative Education, Asa S. Knowles, ed. (San Francisco: Jossey-Bass, 1971), p. 273.

[2]Asa S. Knowles, Address before the American Psychological Association, September 5, 1971, Washington, D. C.

a specific goal in mind. "The goal at Tuskeegee was to teach industrial arts and trade skills . . . ."[1] However, the formal integration of this work and study, for the black-college student, did not begin until 1962 when Tuskeegee Institute (appropriately enough) started a cooperative program (See Appendix I). Two years later, the Civil Rights Act of 1964 was passed by Congress and this legislation, along with the Economic Opportunity Act of the same year, provided the encouragement for other black colleges to follow Tuskeegee's lead. Many of these colleges obtained consulting help from the National Commission for Cooperative Education to help guide and plan their efforts. In 1964, Jackson State College in Mississippi and Wilberforce University in Ohio adopted cooperative programs. About this time, Wilberforce moved to a new and more modern location and viewed cooperative education as a means of providing, "a live laboratory in equal opportunity, skills development, and the responsible application of knowledge and self to real problems."[2] The next year, Alabama A & M, Tennessee State College and Hampton Institute joined the ranks of black colleges with "co-op" and each year that has passed has shown a continuation of this growth. The introduction of cooperative education into these colleges is significant, not only because it represents examples of the applicability of this form of higher education to the black college, but because those black colleges that have adopted it include some of the best-known and respected black colleges in this nation. The innovation offered by cooperative education was not merely an attempt to attract more students, but to provide a kind of education that would benefit

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[1]Rippa, Education in a Free Society, p. 141.

[2]"A Worthy Investment: Cooperative Education at Wilberforce University," an undated pamphlet, Wilberforce University. (Printed)

their students after graduation.

In stating the case for the innovative value of cooperative education and the inherent benefit of work experience for disadvantaged students, the value of the financial assistance provided by a system of paid employment must not be overlooked. For many of these students, a college education would not be possible without some financial aid. Wages on a cooperative assignment are part of this aid. Lupton cites one advantage of the co-operative program:

> Various financial aid programs provide one answer for the disadvantaged student in college, but such programs aid only the financially disadvantaged and, for them, they perpetuate a way of life altogether too familiar--give-aways. They do not help dissolve uncertainties about the student's ability to function in society. They do not provide a process for gaining self-confidence, self-esteem, and the many other virtues ordinarily taken for granted by the more affluent youth of our nation. They merely provide some financial assurance that begins to open doors of opportunity. Money alone, however, does not keep these doors open for long.
>
> Cooperative education has proven to be a far more viable and complete answer to the disadvantaged student.[1]

The wage received by the cooperative student is a respectable, effective and economical method of providing financial aid.

On October 15, 1965, the Higher Education Act of 1965 was passed by Congress. Like the Economic Opportunity Act before it, this piece of legislation sought to make funds available to college students in the form of government help to non-profit agencies for the wages paid these students for work done when not in school.[2] Although basically conceived as a program of part-time employment, cooperative colleges saw in this program an opportunity to develop related work experiences in agencies that sorely

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[1]D. Keith Lupton, "The Co-op Way for the Disadvantaged Attending College," Journal of Cooperative Education, VII, No. 1 (November, 1970), 26.

[2]Public Law 89-329, Eighty-ninth Congress, First Session, (November 8, 1965).

needed help, but also needed assistance in funding this help. A favorable ruling was received from the Commissioner of Education and cooperative schools began to apply for these funds to supplement the salaries of such students. Since these funds could only be applied to wages paid by non-profit agencies to students who came from families who were financially disadvantaged, this aid went directly to those students who needed it most. However, instead of this money being given in the form of direct aid, the student had to earn it. Instead of this money benefiting only the student, the non-profit agency involved received some badly needed help as well. The confusion created in cooperative education by the use of the term "work-study" to describe these programs has been more than neutralized by the application of these "work-study" funds to assist in developing new cooperative assignments for students, particularly those in the non-technical disciplines. Many positions in the social service agencies, government agencies, and schools now employ cooperative students with the financial assistance of Title C of this act and its subsequent ammendments.

Blacks, Puerto Ricans, Indians, and other racial minorities are not the only students that come under the all-encompassing term of disadvantaged youth. Some are disadvantaged, not because of the racial origins or religious affiliations, but because they have become alienated from our society. Without feeling a commitment to the values that Americans have traditionally held, these young people have separated themselves from society, just as completely as if they had substantial racial or ethnical differences. Studies have shown that these students tend to remain in the "adolescent" stage and fail to make acceptable progress toward becoming an adult.[1] "Work-study education is an accepted method of helping alienated

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[1]Kenneth Kenniston, The Uncommitteed: Alienated Youth in American Society (New York: Dell Publishing, 1965).

young people to achieve satisfactory adjustment during adolescence. Curriculums based on academic preparation and supervised work experience can satisfy some adolescents' needs for recognition."[1] If it accomplishes nothing else, a cooperative assignment requires college students to work with and to relate to people other then their own peer group. For some, it represents the only involvement they have with the "over thirty" generation. This important perspective on life should not be missed. It prepares college students for the realities of life after graduation.

In addition to the value of the interpersonal relationships, regular employment on "co-op" teaches responsibility and develops a sense of commitment. Students working in mental hospitals, or with handicapped children, or in the urban ghettos quickly come to understand the meaning of commitment. They are not observers to the scene, but, in many cases, the only hope that some less-fortunate people have. These commitments are what make the transition from the adolescent to the adult.

> In defining this new vision of life and society, we must remember the quests of the alienated. Though their goals are oftened confused and inarticulate, they converge on a passionate yearning for openness and immediacy of experience, on an intense desire to create, on a longing to express their perception of the world, and, above all, on a quest for values and commitments that will give their lives coherence.[2]

Cooperative education provides an opportunity for this kind of commitment.

In a similar fashion, cooperative education allows the female student to struggle with the same kinds of prejudices experienced by the disadvantaged. Higher education for women has been available for over a century, but it has usually been of a different kind and for different avowed

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[1]George Burchill, Work-Study Programs for Alienated Youth, A Case Book (Chicago: Science Research Associates, 1962), p. 11.

[2]Kenniston, The Uncommitted, p. 447.

purposes. Only since the Second World War have women, in large numbers, sought the same occupations as men. The acceptable roles for women have always been dictated by a society in which women had no voice and little real power. The Civil Rights Act of 1964 not only liberated minorities, but opened the door for the liberation of women as well. Just as other disadvantaged young people need the experiences that cooperative education can provide, so too, do the female members of the college community.

> Until recent years cooperative education was confined primarily to programs in business and engineering, neither of which enrolls a large number of women . . . Cooperative work assignments enable students, some of them women, to gain employment in these fields. . .
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> . . . . . .
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> By and large, cooperative education helps to break down two major barriers to the entrance of women into the professions--the opportunity to enter new career fields and the opportunity to gain equal pay for equal work.[1]

Growth of "Co-op" in the Senior Colleges

An examination of Appendix VIII will show that the vast majority of colleges beginning cooperative programs after 1963 were located east of the Mississippi River or on the extreme west coast. Of the 111 colleges and junior colleges that adopted "co-op" between 1963 and 1970, seventy-nine of these or 71 per cent were four year colleges. As in previous periods, the growth was most noticeable in the industrial states of the midwest, New York, Florida and California. (See Appendices I and VIII.) Four of the five existing programs in Canada were started between 1963 and 1970. As previously noted, several of those colleges adopting cooperative education were black colleges, and these accounted for nearly a third of the growth rate in the Southern states.

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[1]Harriet Van Sickle, "Professional Development of Women," in Knowles, Handbook of Cooperative Education, p. 268.

There were, undoubtedly, many reasons why cooperative education grew so rapidly since the national study. Of course, one reason was the national study itself. It made people aware that there was such a program as cooperative education, and it emphasized some of the advantages of this type of higher education--advantages, not only for the student, but for the institution as well. The national study also cited the need to expand cooperative education into fields other than the technical ones in which it had predominated.[1]

In addition to the impetus given "Co-op" by the national study, the formation of the National Commission certainly helped in this regard. "For the National Commission, the goal of increasing the number of students and colleges committed to cooperative education involved an intensive program of persuading educational and political leaders of the instructional, social, and economic validity of this form of higher learning."[2] Included in these promotional efforts was a concerted drive to convince the federal government of the soundness of cooperative education. Since World War II, the government had been employing cooperative students, but these students had to be employed within the existing civil service regulations as Student Trainees. The procedures required an examination and meant that any student who happened to be available could apply and compete with those referred by the cooperative institution. The summer periods proved to be especially difficult for the "co-op." As cumbersome as the Student Trainee program was, it did allow, however, for the hiring of cooperative students by federal governmental agencies under civil service regulation. With the assistance of the National Commission a more acceptable procedure for employing "co-ops" was devised by the United States Civil Service Commission,

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[1]Tyler and Mills, Summary Report, p. 29.

[2]Probst, "Promotion and Exchange of Information," p. 321.

but due to the tragic assassination of President Kennedy and the attendent problems of changing roles and relationships within the government, the adoption and promulgation of the new procedure had to wait until 1965.[1] It is now possible for cooperative students to be employed in exempt categories, with their return after an intervening academic period assured.

The easing of the procedures for hiring cooperative students under civil service represents only one of the ways in which the federal government participated in the cooperative program. With the emphasis on aerospace, social welfare and other domestic problems, the federal government, under President Johnson, became a major employer of cooperative students. At Northeastern University, the United States government was the largest single employer of its students during this period.[2] Agencies like the National Aeronautics and Space Administration employed cooperative students from over fifty different cooperative schools.[3] The chairman of the United States Civil Service Commission said in 1969, "One of the finest examples of our cooperative effort is the work-study or cooperative program."[4]

Mention has already been made of the effects of the College Work-Study Program under Title C of the Higher Education Act of 1965 and of the Economic Opportunity Act of 1964.[5] Both of these pieces of legislation

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[1]U. S. Civil Service Commission, FPM Letter No. 213-1, dated April 19, 1965.

[2]"List of Cooperative Employers," Northeastern University, Department of Cooperative Education, 1963. (Mimeographed).

[3]During this peiod the author was the primary coordinator for Northeastern University students working with the National Aeronautics and Space Administration and this data is based upon his personal contacts with the people and installations involved.

[4]R. E. Hampton, "Challenges Facing Government," Journal of College Placement, XXX (December, 1969), 65.

[5]For additional information on these programs see footnote 2, p. 143.

created the need for paraprofessional help that lent itself ideally to employment of college students. Some of the grants under Titles I and III of the Elementary and Secondary Education Act of 1965 also created positions that could be filled by cooperative students.[1] Even the Vocational Education Act of 1964 and its ammendments of 1968 authorized grants to assist in the expansion of cooperative vocational education which related the work experience to classroom work.[2] Many high schools, vocational-technical schools and some two-year institutions were able to make use of these funds.

The greatest impact by far, however, was the effect of President Johnson's Education Message to Congress in February, 1967. Until this time, no President had ever made reference to the importance of a specific kind of college education. In this message, President Johnson urged that many more colleges adopt cooperative education.[3] By 1970, the Civil Service Commission was able to report that 5 per cent of the 85,000 students on cooperative assignments were employed by the federal government and that half of the 155 colleges that had cooperative programs were represented.[4]

The efforts of the National Commission for Cooperative Education and the support of the Cooperative Education Association led ultimately to the direct funding of cooperative education by the Department of Health, Education and Welfare. Under Public Law 91-204, the U. S. Office of Education

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[1]Public Law 89-10, Eighty-ninth Congress, First Session, (April 11, 1965).

[2]L. F. Minear, "Piece of the Action," American Education, V (March, 1969), 4-6.

[3]Probst, "Promotion and Exchange of Information," p. 322.

[4]U. S. Civil Service Commission, "Cooperative Work-Study," Bulletin No. 330-15 (May 25, 1970).

was authorized to grant $1,540,000 to seventy-four institutions of higher education for planning or improving their cooperative program.[1] Specifically, 1 per cent of the money appropriated for the College Work-Study Program may be allocated to cooperative education. As shown by the statement below, cooperative programs that serve mostly minority group students have benefited from these funds, as well as consortia of colleges designed to investigate the feasibility of a combined program.

> Several colleges that enroll a significant number of American Indian students will be supported by planning grants. Seminole Junior College in Oklahoma has many Indians of the original Five Civilized Tribes, as well as a large number of Negroes. . . Some 35 predominantly black institutions of higher education will be given assistance for feasibility studies and planning.[2]

The distribution of these grants by state is shown in Table 2 taken from American Education.[3]

As cooperative education became the method of operation at more and more colleges, diversification in the structure and operation of the cooperative program became more widespread. The cooperative philosophy was found to blend well with a wide variety of institutional philosophies and goals. Surely, cooperative education had fulfilled Schneider's dream of encompassing many disciplines at a variety of institutions. Cooperative students were majoring in everything from accounting to zoology. In addition to many programs in engineering, liberal arts, and business, cooperative courses were begun in nursing at Northeastern, in teaching at New Mexico State, in life science and philosophy at Indiana State, in ocean engineering at Florida Atlantic, and in music at Alderson-Broaddus, to cite

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[1]Public Law 91-204, Ninety-first Congress, Second Session, (1970).

[2]"Support for Collegiate Cooperative Education Programs," School and Society, XCVIII (November, 1970), 399.

[3]"Cooperative Education Program," American Education, (January, 1971), 36.

TABLE 2

COOPERATIVE EDUCATION PROGRAM--AWARDS FOR USE IN 1970-71

	Number of Grantees	Total Amount of Grant
TOTALS	74	$1,540,000
Alabama	9	111,604
California	3	102,267
Colorado	1	24,840
Connecticut	1	7,722
District of Columbia	2	57,722
Florida	3	91,497
Georgia	3	40,284
Iowa	2	49,680
Kentucky	3	54,840
Louisiana	4	72,252
Maine	1	7,722
Maryland	2	28,840
Massachusetts	1	32,184
Michigan	3	77,520
Minnesota	1	50,000
Mississippi	5	84,298
Montana	1	24,840
New Jersey	1	15,000
New York	3	45,444
North Carolina	5	155,006
North Dakota	1	24,840
Ohio	3	116,481
Oklahoma	1	24,840
Oregon	1	24,840
Pennsylvania	3	47,722
Rhode Island	1	7,722
South Carolina	2	17,722
Tennessee	2	21,602
Texas	2	71,840
Virginia	3	41,107
West Virginia	1	7,722

a few.[1] Golden Gate College became the first private four-year college on

[1]For a complete list of the various majors in which cooperative programs are offered see, The Directory of Cooperative Education by the Cooperative Education Association.

the West Coast to adopt a cooperative program,[1] and the insurance companies of New York city joined together to establish the College of Insurance on the cooperative plan.[2] At the University of Waterloo in Canada, the computer was used to assist in the placement of students on their cooperative assignments.[3] And last, but certainly not least, cooperative education at the graduate level became fully established.

Growth of "Co-op" in the Junior Colleges

If cooperative education is uniquely American, it is certainly no more so than the junior college. It should not be surprising, therefore, that these two American contributions to higher education should merge in a superior form of junior college terminal education. Superior, because it combines the academic or cognitive process with the practical or vocational aspects so necessary in the junior college curriculum.

Because of the influence of the engineering direction of early cooperative programs, the first two-year schools to offer "co-op" were technical institutes. In 1922, however, Riverside Junior College, now Riverside City College, in California, became the first junior college to offer cooperative programs. The program is described by the school's

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[1]"Cooperative Education," an undated pamphlet from Golden Gate College, San Francisco, California. (Printed)

[2]M. H. Murray, "Development in Insurance Education," Journal of Business Education, XLIV (January, 1969), 155-156.

[3]R. D. Eaton, "Computer Placement of Undergraduate Cooperative Students," Journal of Cooperative Education, IV, No. 2 (May, 1968), 35-40.

president:

> For periods of six weeks at a time these students carry on as regular employees the varied activities to which they are assigned with their employers, and receive compensation according to the type of service rendered. . . . Each employer has continuous service, as each job is held alternately by two particular students.[1]

Because of the time spent working, the junior college program at Riverside took three years to complete. Many junior colleges today, however, have worked out the program on a year-round basis so that the total program can be completed in the normal two-year period.

By 1939, fourteen junior colleges reported having cooperative programs in their institutions,[2] and by the time the Second World War began there were thirty-four junior colleges that had cooperative programs that would fit our definition. The majority of course offerings were in business with 29 curricula offerings. Smith tells us that:

> Despite the interesting attempts to provide realistic experiences for young people it is evident that cooperative work in junior colleges has not attained great importance. Of the more than 240,000 attending these institutions only 1,393 (6 percent) were reported as enrolled in cooperative courses.[3]

Since 1963, however, thirty-two junior colleges have adopted the cooperative plan and an additional twenty-five have either started since 1970 or have received planning grants to begin a cooperative program.[4] In 1971, James W. Wilson of the Center for Cooperative Education at Northeastern University surveyed some 277 institutions of higher learning that had

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[1]A. G. Paul and H. H. Bliss, "Cooperative Part-Time Work in the Junior College," in W. M. Proctor, The Junior College: Its Organization and Administration (Palo Alto, Cal.: Stanford University Press, 1927), p. 144.

[2]Monroe, "Status of Cooperative Education," p. 184.

[3]Leo F. Smith, "Cooperative Work Programs in Junior Colleges," School and Society, LVI (October, 1942), 307.

[4]See Appendices I and X.

cooperative programs and stated, "It is significant that 30 percent of the sample is made up of junior colleges. In 1970, they comprised 19.1 percent of the sample, in 1969, only 17.6 percent."[1]

Typical of the kind of growth that cooperative education has experienced at the junior college level is the state of Florida, where there is evidence that all of the state supported junior colleges may ultimately adopt the cooperative system.[2] In the fall of 1968, a conference of all junior colleges was held at the University of South Florida to discuss the expansion of cooperative education in these institutions. "Three of these junior colleges (Miami-Dade, Manatee and Pensacola) have initiated co-operative education programs and several others are considering a co-op program for their schools," stated Lupton in 1969.[3] Since then, twenty others have followed Miami-Dade's lead and have begun cooperative programs.[4]

Similar growth can be seen in the junior colleges of New York and California, as well as in several midwestern states. In the list of colleges with over 300 cooperative students enrolled, five of the thirty are junior colleges. (See Appendix XI.) Of these, Manhattan Community College in New York City, which began their cooperative program in 1965, enrolled over 900 cooperative students in 1968-69.[5] The National Commission

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[1]James W. Wilson, "Survey of Cooperative Education, 1971," Journal of Cooperative Education, VIII, No. 1 (November, 1971), 39.

[2]D. P. LaRowe, "Cooperative Distributive Education in Florida's Junior Colleges," Business Education Forum, XX (January, 1966), 28-30.

[3]D. K. Lupton and R. B. Wadsworth, "Junior College Co-op: Partnership and Practice," Journal of Cooperative Education, V, No. 2 (May, 1969), 51.

[4]Knowles, Handbook of Cooperative Education, p. 344.

[5]For more information on this program see Scolnick, "Commercial Colleges Can Ease the Crisis in Retailing Education," Business Education World, XLVI (October, 1965), 20-21.

for Cooperative Education has predicted that there may be as many as five hundred colleges with cooperative programs by 1975. If this prediction comes true, it is evident that a great percentage (perhaps as many as half) will be junior colleges.

CHAPTER IX

SUMMARY OF THE STUDY

Co-op education is the education of the future. It doesn't dwell on reporting the learning of the past.
--Charles Kettering

Purpose of the Study

This study sought to provide the perspective of history for the future development of cooperative education in the United States. In addition it sought to describe in some detail the philosophical basis upon which this form of education is based and to relate the significant events in its historical development--all of this in the hope that a better understanding of the cooperative education movement might result in better utilization of the advantages of cooperative education for a wider spectrum of our society.

The central hypothesis was that cooperative education was based upon a sound educational philosophy and that this philosophy was still the basis for cooperative education programs in 1971. To test this hypothesis the development of cooperative education was traced from its beginning as the idea of Dean Herman Schneider of the University of Cincinnati just after the turn of this century to its status in 1971 which found cooperative programs in existence in some 220 institutions of higher education and in the planning stages in some seventy others.

To complete this investigation the research was divided according to the chapter headings shown in the Table of Contents. In order to lay a foundation for the acceptance of the cooperative idea, the need for new forms of higher education in this century was examined in the light of a

more utilitarian direction to higher education. Believing that the rationale for any innovation is most clearly presented at the time of the idea's inception, this study began with an examination of how the cooperative plan evolved in the mind of its originator, the late Dean Herman Schneider of Cincinnati. This study showed that his idea was a uniquely American concept and was not based upon any previous plan of practical education.

This study then proceeded to a consideration of how the cooperative plan spread to other colleges and to other fields of study. The effects of two World Wars and the Great Depression on cooperative education were researched as well as the effects of the various organizations which supported this concept in "relevant" education. Toward the end of this discussion, an investigation of the applicability of cooperative education for minority groups completed the story.

The material necessary to accomplish this research was collected from a variety of sources as outlined in Chapter I. However, it is important to repeat here that the major part of this information was obtained in a few libraries--the Boston Public Library, the New York Public Library, the Northeastern University library and the Boston University library, being the more important sources--and from the minutes of meetings of the organizations involved in the development of cooperative education--the Society for the Promotion of Engineering Education and the Association of Cooperative Colleges, being the most important in this group. In addition the writings of the people important to the development of "co-op" were researched and their contributions critically evaluated. Last, but by no means least, was the countless number of conversations with cooperative educators, both active and retired, covering a span of four years. Some of these people were involved in cooperative education for over forty years.

Summary of Findings

In 1965, Asa S. Knowles, the president of Northeastern University said, "Co-operative education...is one of the most misused and misunderstood terms in both business and educational circles."[1] It has been the purpose of this study to correct some of those misunderstandings and to provide information to lessen the misuse of this term. If it accomplishes nothing else, it will have been worthwhile. However, other questions were raised in the first chapter and it is to these that this last chapter must address itself. It would be an impossible task to speak of the future of cooperative education without first looking back over the material collected in this study and applying this seventy years of accumulated knowledge to the present.

In the latter part of the nineteenth century, higher education in the United States slowly, but perceptively, started to turn from the traditional classical model toward one that was more utilitarian--more practical. This trend has continued until the present and there is some evidence that higher education will continue to be more oriented to "real life" situations. As a larger percent of our population began to avail themselves of the opportunity for higher learning, the model that provided college education for an "elite" no longer had relevance for the masses. In a report issued by the Carnegie Commission on Higher Education in the fall of 1971, the members emphasized that higher education in the United States has gone considerably beyond even that required to insure its availability for the majority of citizens.

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[1]Asa S. Knowles, "Partnership Between Business and Education," The Purple and Gold, LXXXII, No. 3 (Spring, 1965), 39.

> The United States is creating a society in which more people will have had more education than ever before in history in any nation. Thus it is encountering new problems and opportunities for itself and chartering new territory for other nations.
>
> With a few major exceptions, particularly Canada,...most other nations of the world are now beginning to move or are completing the move from an historically more elite system to mass higher education to meet the technical requirements of industrial society.
>
> The United States is now going beyond those requirements and making higher education available to all those who want it for whatever reason.[1]

In this same report, as well as in their earlier report, "Less Time, More Options," this commission has described the need, in America's colleges and universities, for a greater diversity in form and for more opportunity for students to "drop out" from their education to work.[2] Cooperative education is one method of accomplishing this end. It is also one that has gone beyond the experimental stage and has proved that it can be adapted to a variety of situations and institutions.

There has been a tendency in the past to refer to many types of work-oriented education as cooperative education, while omitting programs that should properly have come under its aegis. As a result of this study, the author has been able to identify certain essentials that every program should have in order to be called cooperative education. First and foremost, there must be a formalized program that seeks to integrate some type of experience outside the classroom with that happening inside the classroom. This is usually experience in the form of work in business, industry, or social service agencies, but not exclusively so. This work or other outside

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[1]Carnegie Commission on Higher Education," New Students and New Places," reported in The Chronicle of Higher Education, (October 12, 1971), 7.

[2]Carnegie Commission on Higher Education, Less Time, More Options (Hightstown, N. J.: McGraw-Hill, 1970).

experience is planned and supervised (or coordinated) by a [illegible] (or coordination) from the institution involved. The coordinator is frequently concerned with not only the placement of each student, but with counseling him as well. The sequence of work and school experiences is usually on some type of an alternating basis, not simply with the experience coming at the end of the program as in the medical and dental professions.

In general, the work experience consists of paid employment, not just observer or volunteer positions. This does not preclude the use of volunteer positions, but rather, implies that the volunteer-type position is a rarity, not the usual type of employment by the majority of students in the program. To be considered a cooperative program, the plan must be one of full-time operation, not an evening part-time program with students working during the day. This kind of education is more properly called "continuing education" rather than cooperative education. It is not the intent, here, to exclude cooperative programs that alternate on a half day basis, but only to exclude the more common practice of having students attending school primarily in the evening after working during the day. All work-oriented education is not necessarily cooperative education, nor does all cooperative education necessarily require that the experience be related to the career goals of the student. Some programs, such as those at Antioch or Beloit, are more oriented toward work for "life experiences."

When cooperative education was first conceived by Schneider, the earning aspect was of minor importance. As "co-op" appealed more and more to the families of working class backgrounds, the emphasis on the earnings at some times, and in some institutions, became more noticeable. It is not assumed in a cooperative program that students will be able to

underwrite the cost of their education. "Our programs, of course, do not provide significant earnings toward financing of college costs, but we have deliberately and specifically made compensation of secondary importance during the required work period."[1]

Last, but certainly not least, is the requirement stated in the "Manifesto" that the institution must consider the program to be "cooperative" and must so state in "publicity and policy."[2] It would be presumptious for any organization or individual to label a program as cooperative education if, in fact, it is not the intent of the institution that it be so.

It is evident that cooperative education, as it is known today, and as it has always been known, was the idea of Herman Schneider and that other forms of work-oriented education that existed in this country and others prior to 1906 did not contain these essential ingredients. It was called "cooperative education" by Schneider and most of the programs existing in the United States readily credit his plan as the sire of their program. The growth of cooperative education was haphazard and uncoordinated until the early sixties, but even with this seeming lack of communication, virtually all of the programs developed adhered rather rigorously to the original philosophy of cooperative education expounded by its originator.

> The theory of cooperative education is very simple. Engineers, like doctors and lawyers, are trained for practice. . . . Prospective engineering practioners were withdrawn from active life during their impressionable years, in order to prepare for active life. They had no tests of their abilities in their chosen fields until the major part of their preparation was completed. . . .

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[1]John L. Biester, "With Pride and Prejudice," Journal of Cooperative Education, VI, No. 1 (November, 1969), 20.

[2]Freund, et al., "The Cooperative System--A Manifesto," p. 113.

> . . . but today life at large cries out for intelligence trained in theory and in practice, prepared to adjust theory with the proper factors of safety to practical problems without number.
>
> The ideal state presupposes ideal man. But mankind is cantankerous and life develops into a series of compromises. The best state possible comes from the wisest adjustment of perfect theory to imperfect man. This adjustment in practical life needs experts who know perfect theory and imperfect man plus the mechanisms he uses in production and government. The theory can best be learned in school; an understanding of man and his mechanisms can be learned only where they operate.[1]

The philosophy is simple and direct. There are parts of every occupation that cannot be learned in the academic setting--that can only be learned by practice. To some estent all of life is like this. Some parts of life can only be learned by experiencing life itself. "It should not require much argument to show that the practice and the theory underlying it should be taught simultaneously, if possible."[2]

The original hypothesis was: that there is a consistent philosophy of cooperative education that has persisted, perhaps with modification, since the beginning of the movement and that it was still valid in 1971. It is now time for us to test this hypothesis in terms of the information gathered. All of the programs established prior to 1920, adhered to Schneider's philosophy quite closely--especially since it was he who, either directly or indirectly, was involved in the organization of these programs (see Appendix II). But even programs as different as the one established at Antioch in 1921 show remarkable similarity to the "Schneider philosophy." Compare Schneider's statement above with that of Arthur Morgan, former president of Antioch.

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[1]Schneider, Thirty Years of Educational Pioneering, p. 13.

[2]Schneider, "Notes on the Cooperative System," p. 395.

> It is the business of education to determine what factors enter into well-developed personality and to arrange a program which will provide as nearly as possible the experiences, opportunities, disciplines, and incentives which will tend most to full and effective development.[1]

Horace English, a professor at Antioch during the twenties explained further: "If it is the function of a liberal and cultural education to provide an adequate orientation to the problems of contemporary living, then it is essential to supply acquaintance with the facts and conditions of contemporary living."[2] In fact, as the philosophy of operation of the cooperative programs described in this study is examined, one sees a remarkable, almost dogmatic, adherance to the original philosophy. The catalogs and brochures of other cooperative programs in existence today, if they describe their philosophy at all, describe it in terms of Schneider's original philosophy. It remains an incredible prophecy today that Schneider viewed his cooperative plan as someday encompassing many majors in many very different institutional settings. However, this eclectic attitude enabled him to develop a philosophy of cooperative education that was broad enough to encourage the inclusion of every segment of society.

Is this philosophy still valid today? Apparently so. The rate of increase in number of institutions of higher education that are adopting cooperative programs today shows no evidence of decline. Once again, an examination of their statements reveals that these new programs still follow the basic philosophical tenets laid down by Dean Schneider nearly seventy years ago. In those cases where the validity of cooperative

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[1]Arthur E. Morgan, in English, "The Antioch Plan," p. 404.

[2]English, "The Antioch Plan," p. 402.

education has been questioned, one finds that it is a lack of understanding of the philosophy of cooperative education that is responsible for this attitude. One recent example should suffice. On page two of this dissertation, the author quotes the Assembly on University Goals and Governance. From a re-reading of that passage, it should now be evident that what the Assembly feels this goal should be is already embodied in cooperative education. Their disenchantment with "what now passes for cooperative work and study programs" belies a lack of understanding of the true nature and philosophy of cooperative education.[1] What is the nature of cooperative education? Wilson claims that, "Cooperative education is a strategy of non-scholastic work incorporated into the curriculum and carried out by the students, the object of which is to assist students to meet those developmental goals appropriate to their age level."[2] This investigator feels that cooperative education is a philosophy, not a strategy--a philosophy of education that emphasizes the value of work and believes that work experience should be integrated into the college curriculum for its own worth. Work, particularly if it can be related to career goals, is an experience that all students should have. The dean of the school where "co-op" had its beginning sums up this feeling in one sentence. "Cooperative education strives always to build upon the fact that the two strongest roots of education are knowledge and experience; it seeks always for more complete interaction of these prime factors."[3]

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[1]The Assembly on University Goals and Governance, First Report, p. 14.

[2]James W. Wilson, "On the Nature of Cooperative Education," Journal of Cooperative Education, VI, No. 2 (May, 1970), 8.

[3]Cornelius Wandmacher, "Values of Cooperative Education," Journal of Engineering Education, LIX (December, 1969), 326.

"Co-op" and the Federal Government

In the last chapter the many and varied ways in which the federal government is involved in cooperative education were considered. The question here is: what is the role of the government likely to be in the future? Every indication leads one to believe that the government is going to take much more of an interest in cooperative education, at all levels, than it ever has before. In this fiscal year, 1971-72, as in the previous year, funds for "institutions of higher education which desire to plan, implement, expand or strengthen their cooperative education efforts" are available as a percentage of the College Work-Study appropriation. In 1971, 1.8 million dollars were awarded to ninety-one colleges and junior colleges located in thirty-nine states and territories. A review of these grants indicates that a significant portion of these funds went to institutions with a large number of minority group students. Over one-third of the grants went to the southeastern states or to institutions like Wilberforce University or North Carolina A & T State University which serve the black community. "Some people in co-op circles are optimistic that next year's funds may not be tied in with the college work-study program. Instead it is hoped that co-op will have its own appropriation as provided in the original legislation."[1]

Since the majority of schools with cooperative programs are located in large metropolitan areas, they will always attract a significant number of disadvantaged students. This, coupled with the fact that more and more two-year community colleges are adopting "co-op," means that the cooperative

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[1]D. Keith Lupton, "Cooperative Education Grants: Round Two," Journal of Cooperative Education, VIII, No. 1 (November 1971), 37.
In fiscal year 1972, 10.8 million dollars were actually appropriated for cooperative education.

institutions will be among the institutions working with the inner-city youth and those from the blue-collar families. A glance at the thirty colleges with the largest "co-op" enrollments shows quite clearly the communities that these schools serve.[1] As more and more federal monies become available for programs for the disadvantaged, cooperative schools will continue to be involved to a greater degree. As Wilson has urged, "We should seek to persuade the Office of Education that cooperative education is first a superior plan of education and that the highest priority in judging effort to adopt, expand or strengthen programs is the educational sense the plan makes."[2] Cooperative education began by appealing to the inner-city youth of Cincinnati, Boston, Pittsburgh, Detroit, Philadelphia and Akron and it continues to identify with the value structure of our large and ever-growing middle class.

Current Trends and Their Implications for the Future

A separate dissertation could be written just on the current trends in higher education and their import for the future. It will suffice in this section to cite only a few of these trends, particularly those that seem to concern themselves directly or indirectly with cooperative education. The first, and perhaps most discussed today, is the idea of "interludes" in the college program. This has been mentioned in virtually every study made of higher education in the past two years. The idea of students "dropping out" of college to pursue other activities has great appeal for

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[1] See Appendix XI.

[2] James W. Wilson, "Federal Funding for Cooperative Education: Report and Suggestions," Journal of Cooperative Education, VII, No. 2 (May, 1971), 48.

today's youth. It is not the intent of this study to examine the psychological reasons for this desire in young adults--Kenniston, Riesman and Jencks, Halleck and others have done so. Whatever the reason, though, cooperative education provides a way to include many of the [illegible] and emotional advantages of "dropping out" within the college program. The chance to get away from formal classroom instruction, to try a field of specialization before making a commitment, to introduce an interlude into the program or to break the "lock step" of traditional educational patterns are all possibilities within the cooperative system. "Co-op" provides a way of "dropping out" for short periods, while staying in the educational structure.

In many areas of the United States where there are a number of higher educational institutions in close proximity to each other, these institutions are joining together to form "consortia." This gives their students the opportunity to cross-register for courses in any of the institutions, and allows the institutions involved to eliminate unnecessary duplication of courses, facilities, and faculties. This trend, too, allows cooperative institutions to provide a wider range of cooperative opportunities for their students without an unnecessary duplication of their coordinating staffs. Several of the grants awarded by the U. S. Office of Education have been for the consortium approach to cooperative education. One institution, usually one with a record of success in cooperative education, is chosen as the program coordinator for several institutions that would like to adopt the cooperative plan. This approach has worked well, particularly in Florida where the University of South Florida, as established cooperative school, is serving as program coordinator for a grant to plan and expand cooperative education to nine junior colleges and the thirteen private

institutions in Florida.[1]

Earlier in this study, mention was made of the unusual increase in the number of junior colleges adopting cooperative programs in the past two years. As the number of two-year institutions grows, and if the number of four-year colleges remains substantially the same, as recommended by the latest Carnegie Commission report, it is evident that the greatest expansion in cooperative education in the future might well be at the junior college level.[2]

Another trend very much in evidence in higher education is the worsening financial situation of the private institutions. Recent Supreme Court decisions offer adequate testimony to the fact that the federal government is not willing to assume a significant share of the burdens of funding private colleges and universities. As the traditional sources of revenue become "worked out," America's private schools need to turn somewhere else for help. An ever increasing tuition rate is not the answer, at least not as long as the public institutions continue to hold their tuition relatively constant. With the financial differences so apparent, the private college needs to seek other ways to attract students at the higher tuition rate. One way to do this is to advertise a unique type of educational program. Cooperative education can provide this uniqueness. The University of the Pacific had this kind of experience. "The program [cooperative education] was launched in June of 1970, and is credited with an 83% increase in enrollment, despite the fact that the annual tuition is $2,400 in a state where higher education may be obtained tuition-free and

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[1]Knowles, Handbook of Cooperative Education, p. 347.

[2]"New Students and New Places," Chronicle of Higher Education, p. 3.

enrollment is down."[1] In Table 3, it is shown that cooperative education is an important ingredient in the operation of private schools, especially at the four-year level.

TABLE 3

Governance of Cooperative Institutions

Board of Control	Number of 4 yr. schools	Number of 2 yr. schools	Total
Private, Non-sectarian	45	11	56
Private, sectarian	21	2	23
State	86	7	93
Municipal	4	7	11
School District	1	14	15
County	0	8	8
TOTAL	157	49	206

Of the 206 cooperative colleges for which information could be obtained, nearly 40 per cent of them are private ones. It should also be apparent from this table that, since almost half of the schools with a cooperative plan are state schools, an increase of significant magnitude in this group could have a serious effect on the private cooperative schools. Because cooperative education assists students with at least part of their educational costs, "cost-of-education" grants as advocated by the Carnegie Commission Report on Financial Aid, could actually discriminate against the private cooperative schools.[2]

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[1]Cooperative Education Newsletter, published by the Cooperative Education Association (January, 1972), p. 6.

[2]"Carnegie Commission Report on Federal Aid," The Chronicle of Higher Education, VI, No. 12 (December 13, 1971), 14.

Among the recommendations of the Carnegie Commission in New Students and New Places is "increasing the equality of opportunity, particularly for students whose families are in the lower half of the socioeconomic scale."[1] However, simply increasing the opportunity for higher education is not enough. For this group, education must have some immediate application and it must also serve to introduce the disadvantaged student into the world of business and industry. Cooperative education can serve both these purposes. In addition, it helps to provide a partial solution to certain problems that plague all students regardless of socioeconomic background. The same report cited "loss of personal attention to students, loss of personal acquaintance among faculty members, and increase of disruptive events on campus" as some of "costs" of increasing the size of higher educational institutions.[2] Again, cooperative education can be of help. In a cooperative program, the students knows that there is one person in the institution that knows him personally--his "co-op coordinator." The coordinator is available for counseling and guidance for each of his students at any time the need arises-- his special emphasis, of course, being in the area of vocational guidance.

Another "call to arms" in educational circles today is the "open university" or the "university without walls." This concept has different meaning for different people. For this discussion the "open university" means the awarding of credit for work accomplished outside the university--the external degree part of the program. Here too, cooperative education is in a position to be of assistance. Because of the contacts that

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[1]Carnegie Commission, "New Students and New Places," The Chronicle of Higher Education, 7.

[2]Ibid., p. 7.

cooperative schools already have outside the university, they are in a position to evaluate the "relevance" of this outside work. A grant for this purpose was awarded to Antioch College in the Cooperative Education grants from the U. S. Office of Education for fiscal year 1971-72.[1]

At this point, perhaps, the discussion should shift from the trends in higher education to the trends in cooperative education. While on the subject of academic credit for work accomplished outside the University, something should be said about academic credit for cooperative education. Traditionally, formal credit for cooperative work has not been part of the academic scene. To be sure, some rather broad statement insisting that participation in the cooperative program is required for graduation appears in most catalogs of cooperative schools. If credit is awarded, it has usually been "additive." Lately, however, there is a movement at many of the cooperative institutions to award credit for "co-op" that would replace other academic credits for graduation. In 1967, Bonnell talked about the "academic soundness" of cooperative education.[2] It follows that if the proponents of cooperative education truly believe in the inherent educational value of the "co-op" experience then they should be willing to fight for the substitution of credit for cooperative experience for some of the academic credit required for graduation. There seems to be a mounting interest in this question on many of the campuses.[3]

As cooperative education continues to expand, it seems that other

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[1]Lupton, "Cooperative Education Grants," p. 37.

[2]A. T. Bonnell, "The Academic Soundness of Cooperative Education," Journal of Cooperative Education, I (November, 1964), 19-27.

[3]D. R. Opperman, "The Case for Academic Credit in Cooperative Education," Journal of Engineering Education, LXI, No. 7 (April, 1971), 800-802.

kinds of organizations of cooperative educators will be necessary. This is not to say that the Cooperative Education Association or the Cooperative Engineering Education Division of the American Society for Engineering Education should be abandoned, but rather that their efforts should be encouraged and expanded as well. To accomplish this, regional associations may be necessary to work on regional problems. As cooperative education expands into the vocational-technical schools, state associations may be necessary.[1]

This rapid expansion of cooperative education means that a concerted effort is needed to examine the goals of this movement. The American Society for Engineering Education made a start in 1968 when this organization examined Cooperative Education's goals in the baccalaureate program in engineering. The Cooperative Education Association or the National Commission for Cooperative Education should give serious attention to this matter. In order to be effective and efficient, cooperative education must now look ahead to the next ten years. The original ten-year goals of the Commission are completed and a new direction must be charted. It is even possible that the National Commission should become an agency of the U. S. Office of Education.

One of the trends promoted by the National Commission was to introduce cooperative education into more of the non-engineering areas. This trend should continue. Of the 178 cooperative schools listed in the Cooperative Education Association's brochure, 106 have co-op in engineering while only twenty have it in education and thirty-five in liberal arts.[2]

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[1]There is evidence to suggest that the cooperative colleges in Ohio have already started a state association.

[2]Cooperative Education Association, "What is Cooperative Education?" an undated pamphlet. (Printed.)

There has been much experimentation with the type of cooperative program and the length of the school and work periods. It appears that most cooperative schools have adopted either the semester of the quarter plan, (see Table 4) but there is need to continue to experiment with the calendar so that new calendars will be devised as changing conditions require. The type of program, whether mandatory, optional, or selective, should be examined for optimum effectiveness at each institution. It has been suggested that it may even be necessary to have a different type of program in different major fields within the same institutions. In many cases, the type of program an institution advertises is the one in which its largest program operates. Only in a few cases is a mandatory program really mandatory throughout the entire institution. In most of the colleges that list its cooperative program as mandatory, it is only mandatory in those programs that operate on the co-op plan. The Directory of Cooperative Education lists each major field in each institution with the type of program operated in that major field.[1]

Table 5 shows that the optional or elective program is by far the most preferred.

In recent years, there has been a trend toward providing professional training for coordinators of cooperative programs. Until 1965, coordinators were basically recruited from the faculty ranks or from the cooperating industries. After being hired by the college, the coordinator was trained on-the-job by someone within the institution. In many cases, in new programs the coordinator was left to train himself. It may have been this lack of professional training that resulted in the coordinators at many

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[1]Cooperative Education Association, Directory of Cooperative Education.

TABLE 4

Length of the Alternating Period in Cooperative Programs

Length of term	4 year schools	2 year schools	Total
Semesters (15-20 weeks)	85	27	112
Quarters (12-14 weeks)	53	11	64
Trimesters (3 equal/year)	10	2	12
Terms (less than 12 weeks)	7	3	10
1/2 day alternation	0	4	4
Others:			
6 months	1	0	1
12 months	1	0	1
TOTALS	159	47	204

TABLE 5

Type of Program

Type of Program	4 year schools	2 year schools	Total
Mandatory (The institution requires "co-op" in most of its major fields).	24	15	39
Optional (The program is elected by the students).	101	24	125
Selective (The university or the cooperating employer or both select the students).	3	0	3
TOTALS	128	39	167

institutions being considered staff members instead of faculty members. Today, the tendency is to appoint the coordinator to the faculty of the college and to require the kind of credentials required of any faculty

member. In addition, the college involved can send the coordinator to one of several cooperative schools where he can attend a workshop or a summer institute for new coordinators. Northeastern University has been involved in conducting these workshops for a number of years and more recently the University of South Florida and Virginia Polytechnic Institute have also been involved in the training of cooperative education coordinators. As the process expands, there is little doubt that Master's degree programs will be developed in the field of cooperative education and that this will become the required preparation for coordinators.

As the expansion of cooperative education in the United States reaches its peak and begins to wane, there is sufficient evidence to suggest that similar growth will follow in many foreign countries. Successful cooperative programs are operating in Canada, Great Britain, and Russia, as mentioned earlier in this report. There is evidence to suggest that cooperative education is part of the curriculum in many of the engineering schools in China.[1] More recently, the cooperative idea has been discussed in Latin America and other countries of Europe. As other nations move toward higher education for the masses, one of the means of providing a more practical higher education will have to be considered. Cooperative education has a history of success.

What are some of the other studies that are suggested by the data gathered in this one? The history of cooperative education is not complete by any stretch of the imagination. What are the student organizations in cooperative education? There is evidence to suggest that several schools have specific organizations for cooperative students. At least one report implied that there have been attempts to organize the cooperative students

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[1]H. R. McArthur, "The Work-Study Program: Engineering Education in China Today," Journal of Engineering Education, LVI, No. 9(May, 1966)332-336.

at many institutions. The Cooperative Education Association is now forming a student chapter.

What will be the effect of the three-year baccalaureate on "co-op" programs? Certainly the traditional five-year program will have to be modified if the shortened bachelor's degree becomes widespread.

What has happened to cooperative education in the secondary and vocational schools since the first program began in Fitchburg, Massachusetts in 1906? There are many kinds of cooperative programs operating at the secondary level but a study of them has never been made. Should not the cooperative colleges be concerned with providing teacher training for these teacher-coordinators?

What effect will the projected decreases in college enrollments have on cooperative education? What can the cooperative schools and the Cooperative Education Association do to insure the continued viability of this form of higher education?

These are only some of the issues that cooperative education must address itself to in the next decade. With the almost overwhelming burden of an uncontrolled expansion of cooperative education in times of economic uncertainty, cooperative educators must not ignore the future. It is only through proper planning and implementation that cooperative education will survive another seventy years. "It is often said that President Kennedy possessed a sense of history. I think that is true. And I understand that phrase to mean that President Kennedy knew his dreams and actions were limited by the decisions of men before him, just as his decisions will limit and direct the lives of future generations."[1] So, too, educators

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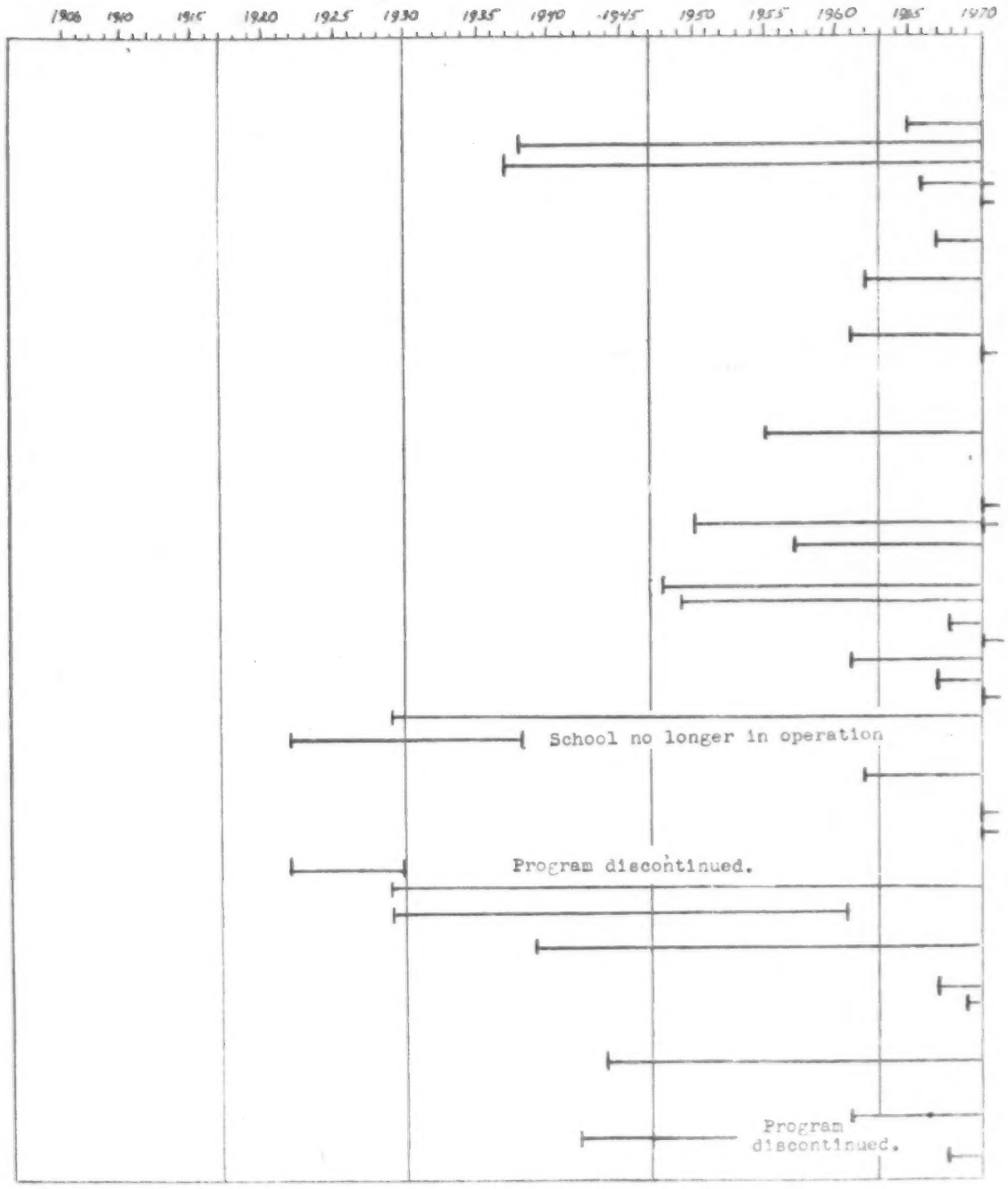
[1]Edith Green, "Through a Glass Darkly: Campus Issues in 1980," Stress and Campus Response (San Francisco: Jossey-Bass, 1968), p. 286.

involved in cooperative education today are limited by what cooperative education has been at an earlier time. But the past cannot help to guide us for the future unless we have knowledge of it. It is with this mission in mind that the foregoing has been presented.

APPENDICES



ALABAMA
Alabama A & M [D]
University of Alaba [A]
Auburn University
Gadsden State College [A]
Jefferson State Jr. College [A,B]
University of Southern Alabama
Tuskeegee Institute [D]

ARIZONA
University of Arizona [J]
University of Northern Arizona [J]

ARKANSAS
University of Arkansas

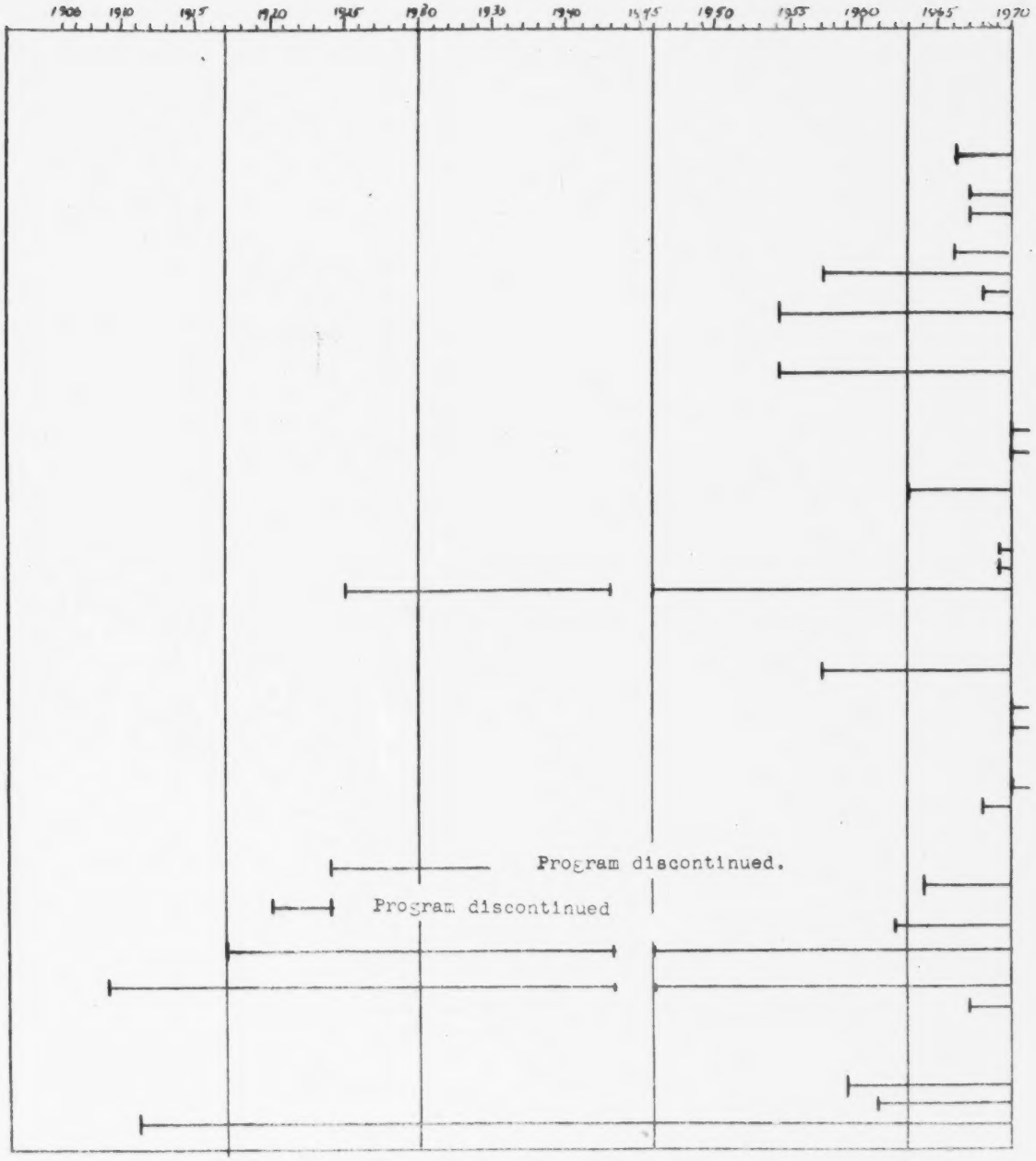
CALIFORNIA
California State Col. at Dominguez Hills [B]
at Los Angeles [J]
at San Jose
University of California at Berkeley [4]
at Davis
Cañada College [A]
Foothill College [A,B]
Fresno City College [A]
Golden Gate College
Long Beach City College [B]
College of Marin [A,C]
College of Medical Evangelists [G]
Northrop Institute of Technology [7]
Orange Coast College [A,B]
University of the Pacific [8]
Riverside City Colle [A,B]
Sacramento City College [A,9]
San Bernadino Valley College [A,9]
San Francisco Junior College [D,10]
College of San Mateo
Skyline College [A]

COLORADO
University of Denver

CONNECTICUT
Central Conn. State Col. [A]
New Haven Junior College [C,11]
Wesleyan University

COOPERATIVE PROGRAMS IN AMERICAN COLLEGES

APPENDIX I
(continued)



University of Evansville

Indiana Institute of Technology
Indiana Northern Univ.
Indiana State University
Purdue University
Indianapolis Campus
Lafayette Campus
St. Joseph's College[17]
Tri-State College

IOWA
Iowa State University

KANSAS
Friends University[B]
Kansas State College of Pittsburg[B]
Kansas State University

KENTUCKY
Alice Lloyd College[A,18]
Lees Junior College[A,18]
University of Louisville

LOUISIANA
Louisiana Polytechnic Institute
Louisiana State Univ.[B]
Tulane University[B]

MARYLAND
University of Maryland[B]
Morgan State University[D]

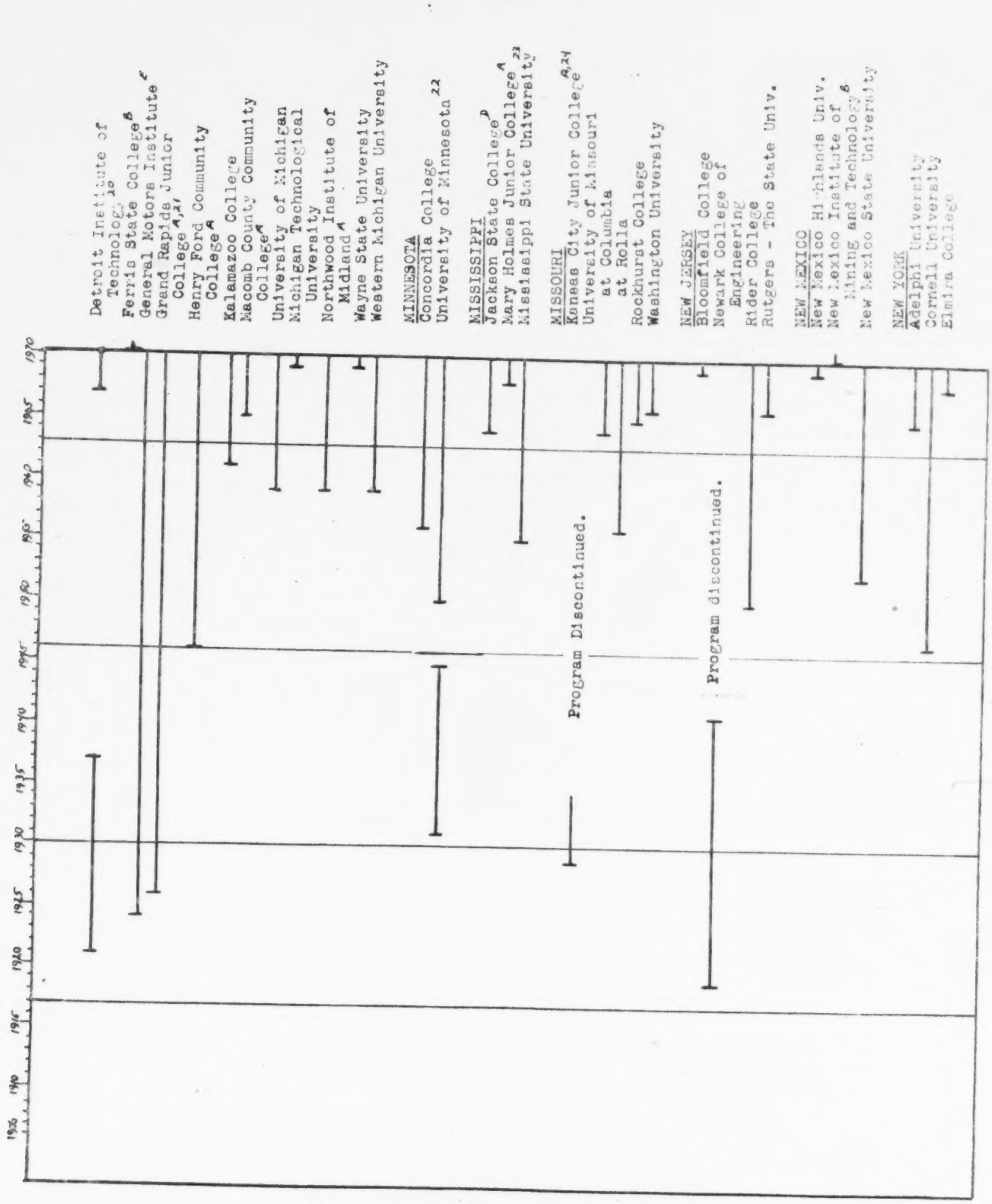
MASSACHUSETTS
Garland Junior College[A]
Graham Junior College[A]
Harvard University
University of Mass.
Mass. Institute of Technology[19]
Northeastern University
Worcester Industrial Technical Institute[A]

MICHIGAN
Central Michigan Univ.
Delta College[A]
University of Detroit

APPENDIX I
(continued)

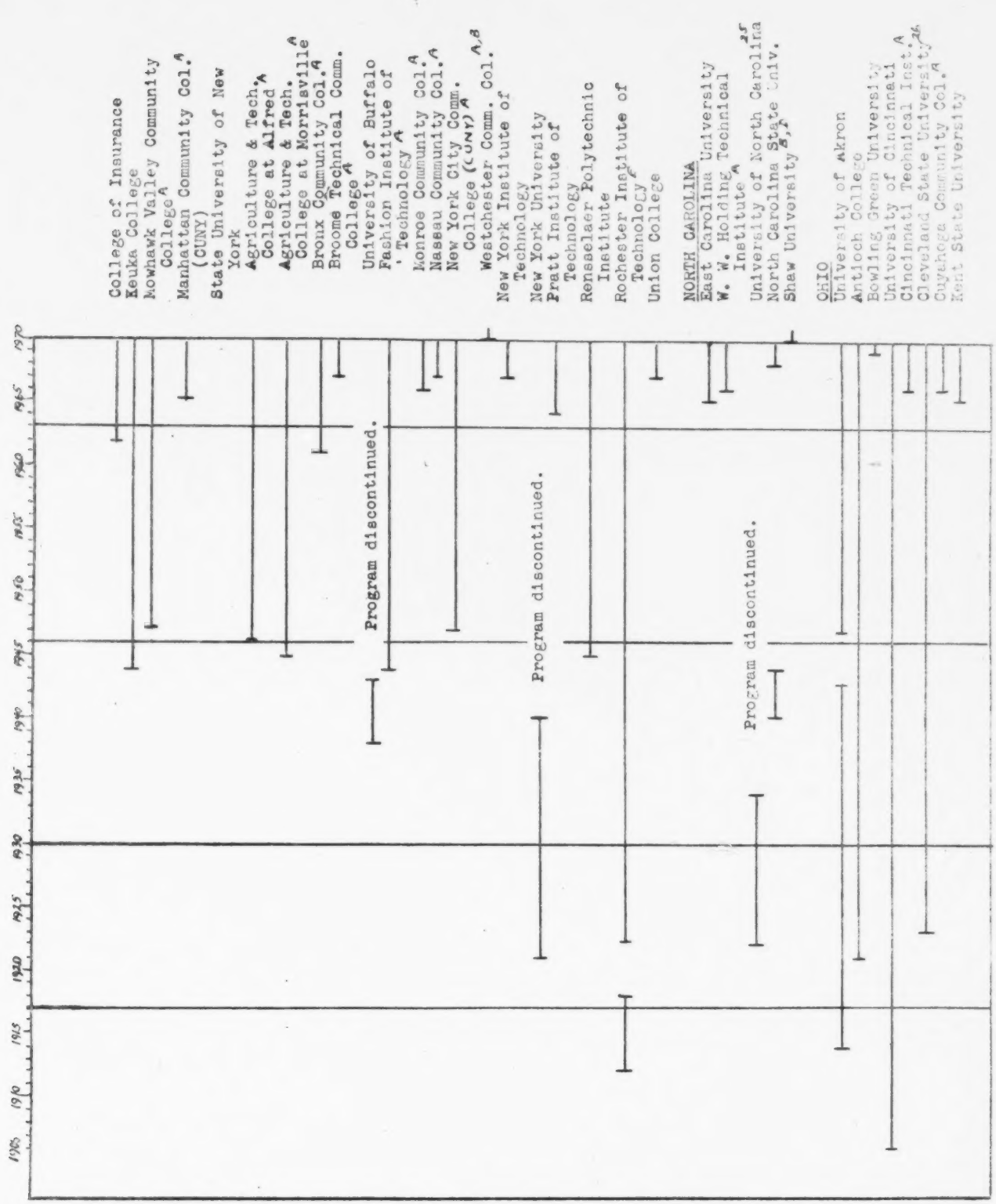
COOPERATIVE PROGRAMS IN AMERICAN COLLEGES

APPENDIX I
(continued)

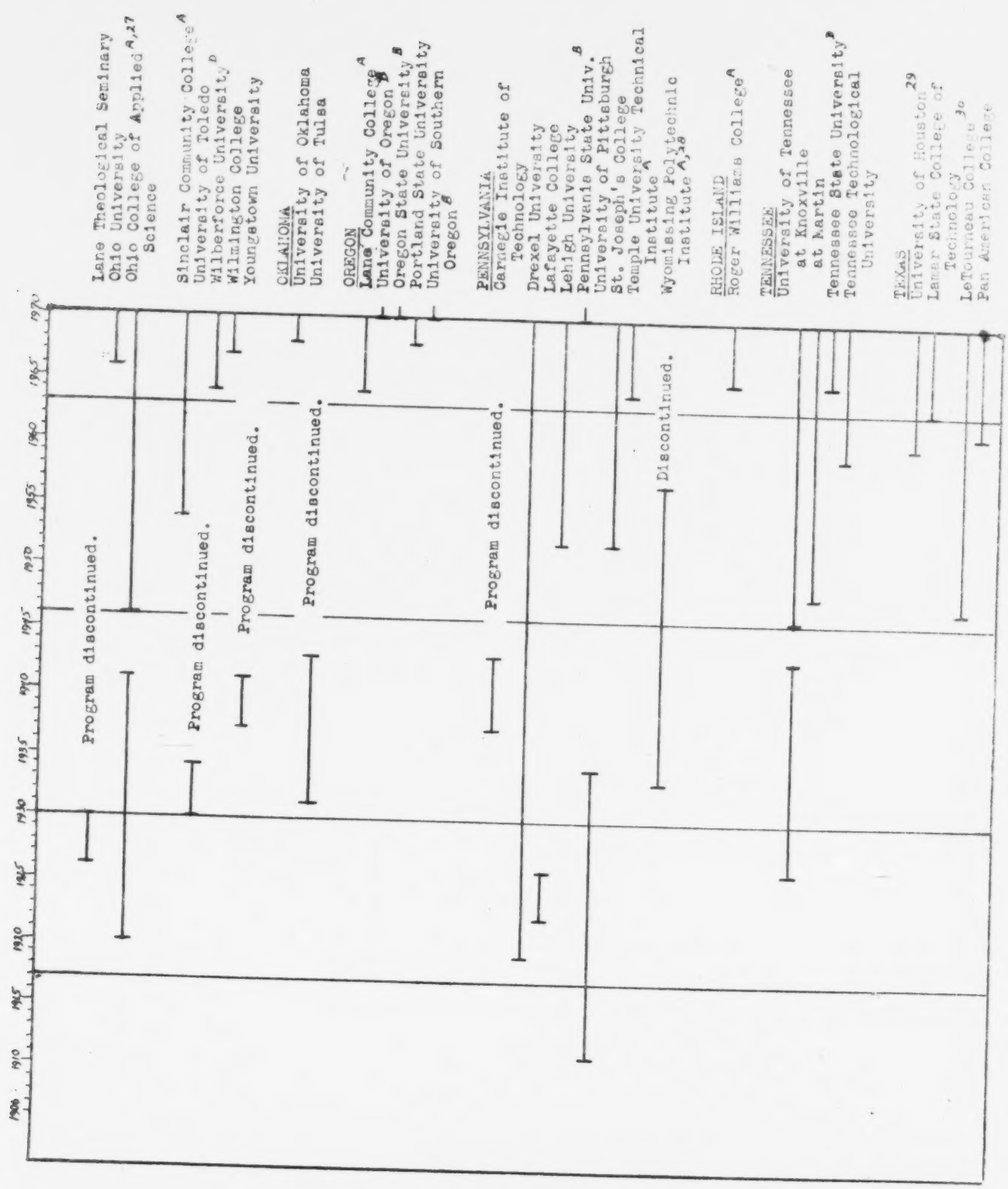


COOPERATIVE PROGRAMS IN AMERICAN COLLEGES

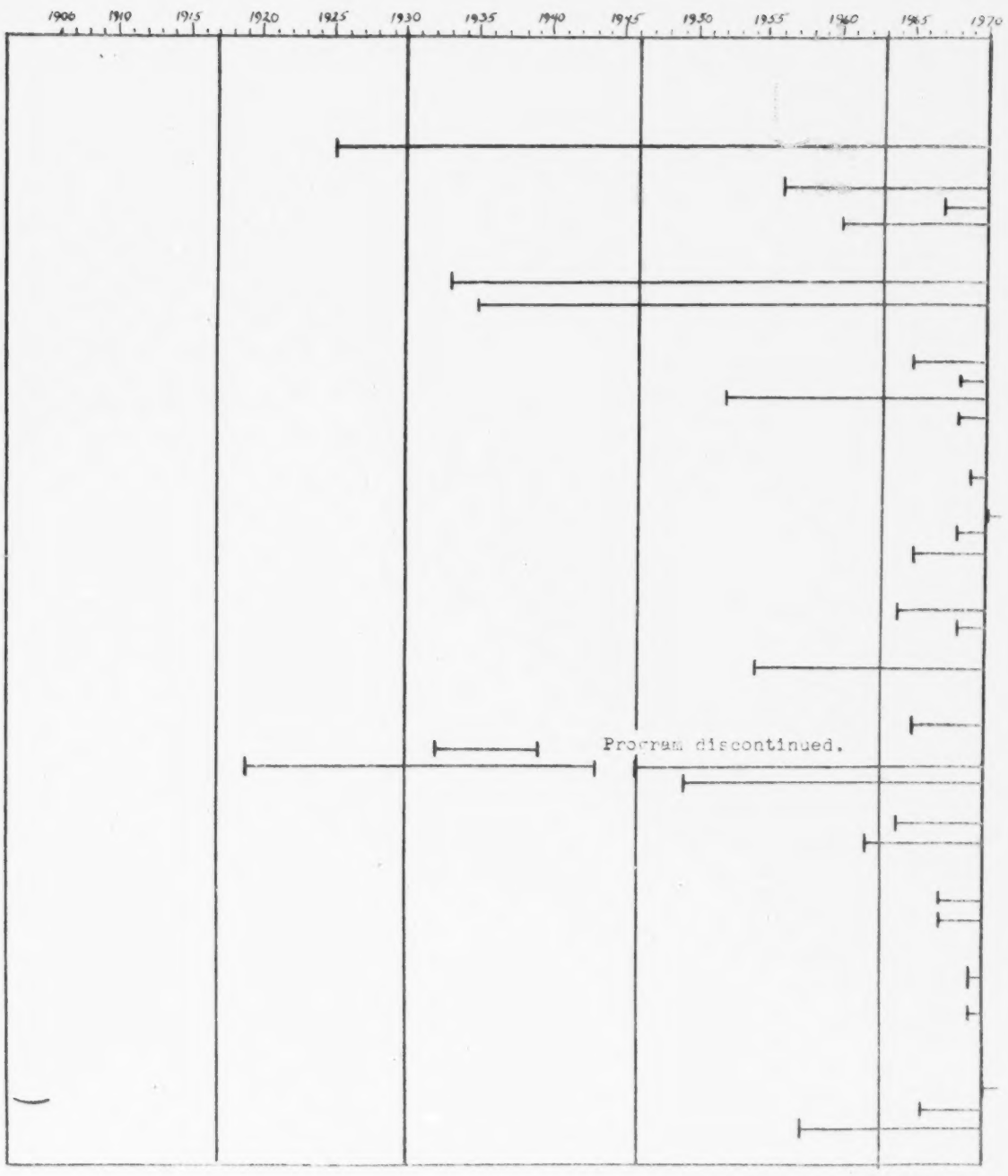
APPENDIX I



COOPERATIVE PROGRAMS IN AMERICAN COLLEGES
APPENDIX I



COOPERATIVE PROGRAMS IN AMERICAN COLLEGES
APPENDIX I



Southern Methodist Univ.
University of Texas
at Arlington
at Austin
Texas A & M

VERMONT
Bennington College
Goddard College[D]

VIRGINIA
Hampton Institute[B]
Norfolk State College[B]
Virginia Polytechnic Inst.
Virginia State College[B]

WASHINGTON
University of Puget Sound
Seattle University[B]
University of Washington
Washington State Univ.

WEST VIRGINIA
Alderson-Broaddus College
West Virginia Institute of Technology
West Virginia University

WISCONSIN
Beloit College
Lawrence University
Marquette University
Milwaukee School of Engineering
Stout State University
University of Wisconsin at Milwaukee
Wisconsin State University at Platteville
at River Falls

CANADA
Memorial University of Newfoundland
Mowhawk College of Applied Arts & Technology[A]
Nova Scotia Technical College[C]
University of Saskatchewan
University de Sherbrooke
University of Waterloo

A - indicates two-year college.

B - indicates cooperative program began in 1970.

C - indicates college planned to begin a cooperative program in 1971.

D - indicates that this college was predominantly a "black students institution" at least until 1970.

E - indicates that this college was formerly a two-year institution, but has now become a four-year college or university.

F - indicates a two-year, upper division college.

1 - The CEA Directory shows 1963 as the starting date of "co-op" programs, but both Smith and Armsby confirm its beginning in 1938.

2 - Co-op program operates only in its College of Mines.

3 - CEA Directory does not list this school, but Armsby and the Journal of Engineering Education confirm the beginning of its co-op program in 1950.

4 - There is disagreement between the CEA Directory and various authors on the starting date of this co-op program. It is either 1946 or 1948.

5 - Not listed in the CEA Directory, this school operated a co-op program in foreign and domestic trade before 1930.

6 - This school discontinued its co-op program in 1938 and the school itself appears to no longer be in operation.

7 - The co-op program operates only in engineering technology.

8 - The co-op program was discontinued in 1930 due to lack of job placements.

9 - Not listed in the CEA Directory, this school operated a co-op program in Nursing before 1930. The program was discontinued in 1961-62 when the Nursing Associations objected to wages for student nurses.

10- Not listed in the CEA Directory.

11- Co-op program operated as a part-time evening program.

12- Armsby cites the beginning of a co-op program, but the school officials could not confirm its existence prior to the date listed.

Notes To Accompany Appendix I

13 - CEA Directory cites 1965 as the starting date of co-op, but Smith discusses a program operating from 1938 to 1943, and Smith and Armsby cite its resumption in 1948.

14 - Smith cites the existence of a program from 1939. It appears to have been discontinued during World War II.

15 - Armsby claims that this school operated a co-op program from 1909 to 1917 as a two-year technical institute, but this could not be confirmed.

16 - The co-op program was discontinued in 1930 due to lack of engineering facilities, but was resumed after the Second World War.

17 - The co-op program operates only on their Calumet campus.

18 - This school is part of a consortium called Kentucky Highlands Cooperative Education Program.

19 - The co-op program is a five-year program leading to a Master's degree.

20 - Both Smith and Armsby cite the existence of this program from 1921 to the Depression, but school officials claim its existence only from 1967.

21 - Not listed in the CEA Directory, but school officials trace the existence of this co-op program back to the 1920's.

22 - Smith cites the existence of a co-op program from 1931 to 1945. Both Armsby and school officials cite 1950 as the start of co-op at Minnesota.

23 - Armsby cites the existence of a co-op program from 1939 to 1942, but it could not be confirmed by this author.

24 - This school operated a co-op program for nurses prior to 1930, but its duration could not be confirmed.

25 - Both Armsby and Smith confirm the existence of a co-op program from 1940 to 1944, but school officials could not confirm its existence at that early date.

26 - Formerly Fenn College and Cleveland College of Teachers.

27 - Formerly the Ohio Mechanics Institute. Both Armsby and the CEA Directory cite 1934 as the date co-op began, but many journal articles, written at the time, confirm Smith's date of 1920 as the beginning of co-op at this institution.

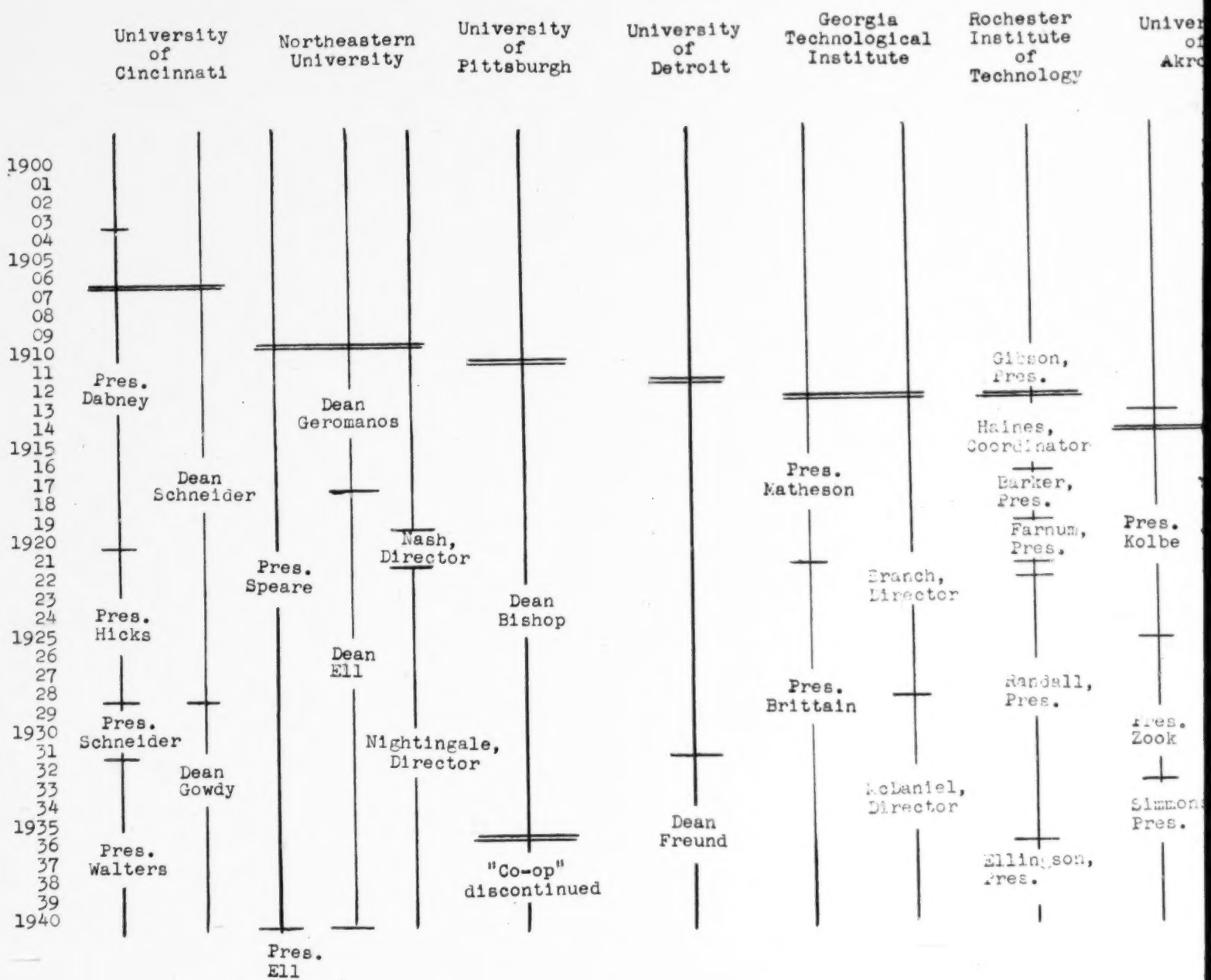
28 - In 1957-58 the industries of Wyomissing, Pennsylvania discontinued their support of this private, two-year school. It has since become a branch of Pennsylvania State University but without a co-op program.

29 - Armsby gives 1946 as the starting date for co-op at Houston, but this could not be confirmed.

30 - The CEA Directory cites 1970 as the starting date of co-op, but early journal articles describe a program beginning in 1947.

31 - A co-op winter term began in 1935, but the trimester program now in operation began in September, 1970.

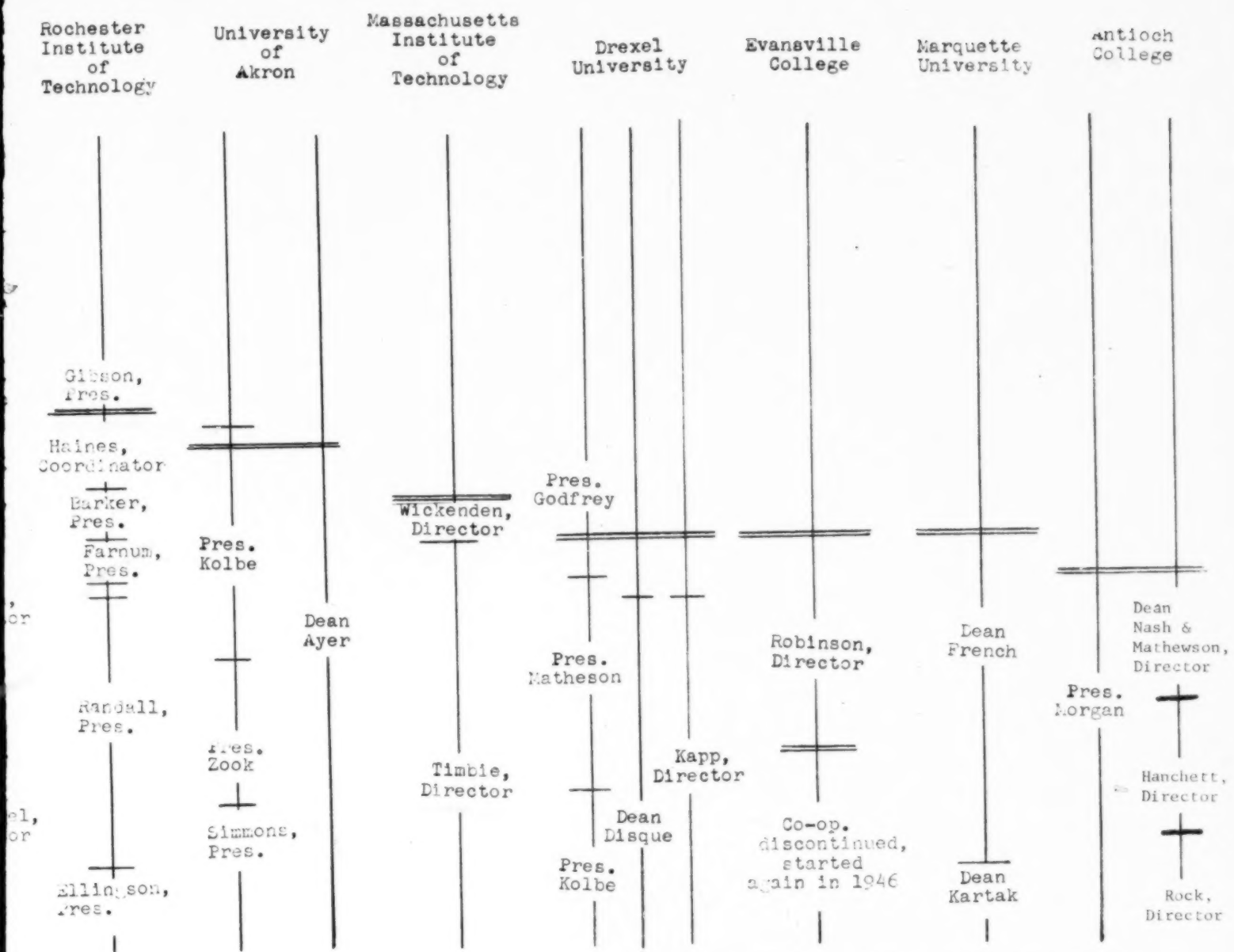
CHRONOLOGY OF PRINCIPAL COOPERATIVE ADMINISTRAT



*Administrators at colleges of lesser importance to the history and development of cooperative education, programs were begun.

APPENDIX II

COOPERATIVE ADMINISTRATORS 1906 to 1940



Style of this chart adapted from Veysey.

f cooperative education, omitted for clarity. Double line, ═══ , indicates year cooperative

APPENDIX II

APPENDIX II

Geographic Location of Cooperative Courses Started Before World War I

APPENDIX III

ADMINISTRATIVE CONTROL OF COOPERATIVE EDUCATION
(First 25 Schools)

Name	Control	Type
University of Akron	Municipal	
Antioch College	Private, non-sectarian	Mandatory
University of Cincinnati	Municipal	Mandatory[1]
Cleveland State University (formerly Fenn College)	State (formerly YMCA)	Optional
Detroit Institute of Technology	Private, non-sectarian (formerly YMCA)	Optional
University of Detroit	Private, sectarian	Mandatory[1]
Drexel University	Private, non-sectarian	Mandatory
University of Evansville	Private, non-sectarian (formerly sectarian)	Optional
Garland Junior College	Private, non-sectarian	Optional[2]
General Motors Institute	Private, non-sectarian	Mandatory[3]
Georgia Institute of Technology	State	Optional
Lafayette College	Private, sectarian	Optional[2]
Lane Theological Seminary	Private, sectarian	Optional[4]
University of Louisville	Municipal	Mandatory[1]
Marquette University	Private, sectarian	Optional
Massachusetts Institute of Technology	Private, non-sectarian	Selective
New York University	Private, non-sectarian	Optional[2]
Newark College of Engineering	State and municipal	Optional[2]
University of North Carolina	State	Optional[2]
Northeastern University	Private, non-sectarian (formerly YMCA)	Mandatory[1]

University of Pittsburgh	Private, non-sectarian	Optional[2]
Riverside City College (formerly Riverside Junior)	District	Optional[2]
Rochester Institute of Technology,	Private, non-sectarian	Mandatory[3]
Southern Methodist University	Private, sectarian	Optional
University of Tennessee	State	Optional

[1]Cooperative work is mandatory in those programs that are operated on this basis, usually all but some non-science majors.

[2]This school no longer operates a cooperative program.

[3]Formerly a non-degree technical institute.

[4]College no longer in existence.

APPENDIX IV
(continued)

Geographic Location of Cooperative Courses Started Between World War I and The Depression

APPENDIX V

Location of Cooperative Courses Started During the Depression and World War II

APPENDIX VI

Location of Cooperative Programs Started Between 1946 and 1963

APPENDIX VII

Location of Cooperative Programs Started Between 1963 and 1970

APPENDIX VIII

Geographic Location of Four and Five Year Cooperative Courses in the United States

APPENDIX D

LIST OF COLLEGES AND JUNIOR COLLEGES PLANNING AND/OR

BEGINNING COOPERATIVE PROGRAMS AFTER 1970

Alabama

Alabama State University[d]
Daniel Payne College[d]
Huntingdon College[d]
Miles College[d]
Oakwood College[d]
Stillman College[d]
Talladega College[d]

Arizona
Maricopa Technical College[a]

California

Cerritos College[a]
Chabot College[a]
Chaffey College[a]
Fullerton College[a]
Golden West College[a]
Grossmont College[a]
Los Angeles City College[a]
Los Angeles Harbor College[a]
Los Angeles Pierce College[a]
Los Angeles Trade-Technical College[a]
Los Angeles Valley College[a]
Merritt College[a]
Moorpark College[a]
Mt. San Antonio College[a]
San Diego Junior College[a]
Santa Monica City College[a]

Colorado

Fort Lewis College

District of Columbia

Federal City College[a]
Washington Technical Institute[a]

Florida

Bethune-Cookman College
Florida Institute of Technology
Florida Memorial College[d]
Gulf Coast Junior College[a]
Indian River Junior College[a]
University of Miami
Okaloosa-Walton Junior College[a]
Polk County Junior College[a]
St. John's River Junior College[a]
Santa Fe Junior College[a]
South Florida Junior College[a]

Georgia
Clark College[d]
Spelman College[d]

Illinois

Triton College

Iowa

Ottumwa Heights College[a]
Simpson College

Kentucky

Jefferson Community College[a]

Louisianna

Dillard University[d]
Xavier University[d]

Maine

University of Maine, Portland

Massachusetts

Merrimack College

Minnesota

Anoka-Ramsey State Junior College[a]
Inver Hills State Junior College[a]
Lakewood State Junior College[a]
Metropolitan State Junior College[a]
Normandale State Junior College[a]

APPENDIX X

Northland State Junior College[a]
North Hennepin State Junior College[a]
Wilmar State Junior College[a]

Mississippi

Meridian Junior College[a]
Rust College[d]

Montana

Carroll College

New York

Hunter College

North Carolina

North Carolina A & T State University
St. Augustine's College
Winston-Salem State College

North Dakota

Lake Region Junior College[a]

Ohio

Baldwin-Wallace College

Oklahoma

Seminole Junior College[a]

Pennsylvania

Cheyney State College[d]

Rhode Island

University of Rhode Island

South Carolina

Clemson University
Morris College

Texas

Huston-Tillotson College

Virginia

St. Paul's College[d]
Virginia Union University

[a]Indicates a two-year college.

[d]Indicates an institution for black students primarily.

List of Colleges with Enrollments in Co-op Programs over 300 Students in 196[illegible]-1969

School (with year co-op began)	Co-op student enrollment 1968-69	Total enrollment in college 196[illegible]-69
Northeastern University (1909)	9[illegible]80	13,[illegible]00
Drexel University (1919)	3555	5,300
University of Cincinnati (1906)	3061	30,036
General Motors Institute (1924)	2[illegible]91	2,[illegible]91
Cleveland State University (1923)	1427	unknown
Georgia Institute of Technology (1912)	1200	7,000
Virginia Polytechnic Institute (1952)	925	9,500
Manhattan Community College (1965)	91[illegible]	3,500
Auburn University (1937)	837	14,500
Rochester Institute of Technology (1912)	834	2,136
University of Detroit (1911)	785	7,111
Antioch College (1921)	750	unknown
University of South Florida (1961)	62[illegible]	11,50[illegible]
Mowhawk Valley Community College (1946)	522	1,5[illegible]1
New Mexico State University (1952)	514	7,600
Wilberforce University (1964)	500	1,017
University of Akron (1914)	465	1,102
Bennington College (1933)	451	490
Cincinnati Technical Institute (1966)	450	530
Beloit College (1965)	446	1,760
Fashion Institute of Technology (1944)	431	1,800
University of Houston (1960)	420	22,000
Elmira College (1968)	405	1,246
University of Tennessee at Knoxville (1926)	378	2,193
Stout State University (1964)	347	4,800
University of Michigan (1959)	330	780
Kalamazoo College (1961)	306	1,250
Northwestern University (1939)	304	744
Alderson-Broaddus College (1964)	300	1,000
Grahm Junior College (1964)	300	1,324

APPENDIX XI

COLLEGES AND JUNIOR COLLEGES THAT HAD COOPERATIVE PROGRAMS DESCRIBED IN THE LITERATURE*

Adelbert College of Western Reserve University - Ohio

Adrian College - Michigan

Big Bend Community College - Moses Lake, Washington

University of Bridgeport - Bridgeport, Connecticut

Erie County Technical Institute - Buffalo, New York

Hillyer Junior College - Hartford, Connecticut

Gila Junior College - Thatcher, Arizona

Kilgore College - Texas

Municipal University of Omaha - Nebraska

North Texas State College - Denton, Texas

Okmulgee Junior College - Oklahoma City, Oklahoma

Santa Ana Junior College - California

South Carolina Industrial Institute - South Carolina

Stoneleigh College - Rye, New Hampshire

*These are not included in Appendix I.

APPENDIX XII

Geographic Location of Two-Year Cooperative Programs in the United States

APPENDIX XIII

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